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THOS. F. RUMBOLD, M. D.,
EDITOR AND PROPRIETOR.

HIRAM CHRISTOPHER, M. D.,
ASSOCIATE EDITOR.

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Original Contributions.

ARTICLE I.

GENESIS.*—I.

By HIRAM CHRISTOPHER, M. D., of St. Louis.

We naturally seek to know the causes of things. The desire is instinctive to our minds. We are not satisfied with the simple knowledge of phenomena—of matter and its numerous combinations, or of the laws, forces or agents concerned in the production of material or psychical phenomena. Whilst the world of dead matter affords the scientist a wide field for observation and experiment, and the exercise of his mental powers, and contributes largely to his intellectual pleasure; yet he is not satisfied with simple knowledge and the pleasure it affords him. He desires to do more than simply observe or note phenomena, to collate facts and deduce principles; he especially desires to know how matter and its forces came to be. In looking on these he asks, Whence are they? How came they here? Had they a beginning? Is matter eternal or do it and its forces owe their existence to some pre-existing power? Was there never a time when they were not, or was there an antecedent cause for all these? If so, what was that cause? Was it a power as inti-

* Life, Matter and Mind, by Dr. Lionel Beale.

mately and as closely connected with matter as are its forces, or was it a power wholly distinct and separate from these, and consequently *supernatural*? If the latter, must not its *nature* be also supernatural? If an adequate cause can be found for all the phenomena which the world presents to us, material and psychical, that cause must be found either in the forces of matter, or in some supernatural power in every way different and distinct from the natural—that which we see in matter, its forces, and in material phenomena. Whether we shall include psychical phenomena, witnessed only in the higher organisms, among *natural* phenomena, will depend on the determination of the question whether the vital agent is a purely physical force.

Reason demands an adequate cause for the effect we observe, and cannot be satisfied until such a cause has been found as will rationally and fully account for all the phenomena observed. It must be a cause fully adequate and efficient; one that will leave no important fact under the cloud of doubt. Such a cause I now attempt to discover from the phenomena of the material and organic worlds, without recourse to any evidence not furnished by these two departments of nature, and I invite the closest scrutiny to the argument; for I desire not to impose upon myself nor on any one else, by any sophistical or illogical reasoning, or the use of any questionable fact or principle.

As to the existence of matter there can be no doubt. We are conscious of the fact, and we cannot be persuaded that consciousness deceives us. But how came it here? But two answers can be given to this question; only two hypotheses can be conceived of that will account for the fact of its existence. It had an origin or it is eternal. It was created by a superior power, or it had no beginning. If its origin was supernatural, that supernatural cause was adequate to the production of all the phenomena which the organic and inorganic worlds present. If it be eternal and had no connection with any other existence or power, then we must find in the forces of matter, agencies or powers fully competent for the production of these same phenomena. To determine that physical forces were the potential causes of all phenomena, both physical and psychical, and place the conclusion beyond question, two facts must be established. Until this is done the hypothesis of the eternity of matter, and the assumed competency of its forces are pure fictions.

1st. It must be established that matter is eternal and had no

connection in its existence with any foreign power. Neither of these propositions can be proved. Both are simply impossibilities. On the contrary, it can be established that matter is not eternal, and that a foreign power did intervene, and become the real author of material and psychical phenomena.

2nd. That physical forces are capable of creating living organisms and of originating vital phenomena. These capabilities of material forces have not yet been shown to exist. There is, therefore, no reason or fact which can warrant the opinion that physical forces originated the material and mental phenomena observed in the two departments of nature.

Spirit, as an existence and cause of phenomena, the physicist rejects as beyond the domain of the phenomenal, and without recognition in nature. He thinks that science has no knowledge of such a thing; that it can have no cognizance of it: consequently its phenomena, admitting the existence and presence of such, are not proper subjects for scientific investigation or experiment. In discarding the agency of any such a power in the production of psychical phenomena, the scientist claims that these phenomena have a material origin, and are, consequently, of a material nature. Though the scientist may refuse to recognize the existence of any agent or power, above, beyond, or external to matter or its forces, as the cause of phenomena, nevertheless intelligent men have the conception of spirit, and speak of it as an intelligent power, and ascribe to it certain observed phenomena; and we submit that such a notion cannot be dismissed as the dream of an enthusiast, and, therefore, unworthy of scientific inquiry, and more particularly as the hypothesis that spirit lies at the origin of matter and mind, accounts for all the observed phenomena in either the organic or inorganic worlds. It will be seen, I think, that the scientist is unscientific in rejecting spirit as an indispensable factor in the solution of the problem presented by the psychical phenomena of animals. It is not an idea that is confined to the Jewish or Christian scriptures, and the result of inspiration. The Greeks had their *pneuma* and *psyche* and distinguished between them, assigning to the former the distinctive and differential atribute of man, and to the latter the psychical phenomena of animals. They not unfrequently, however, employed them interchangeably, and as synonymous, which they could not have done if they had not conceived the *psyche* and *pneuma* as being identical as to nature.

It seems to be the tendency of modern science, if certain men regarded by the world as leading scientists, are to be taken as the leaders, to regard matter and its forces as eternal, or, at least, as the efficient and adequate cause of all phenomena, both physical and psychical. This modern school holds that "mind, emotion, intelligence, and will were once latent in a fiery cloud;" that "all our philosophy, all our poetry, all our science, all our art—Plato, Shakspeare, Newton and Raphæl are potential in the fires of the sun," which means that all phenomena, material, vital, and mental are the work and creation of the forces of matter; that mind, and will, and genius of every kind are but the functions of organisms originated, developed, and perfected by the operation of forces potent or latent, in a fiery cloud. It discards and repudiates all other power or agency as a proximate or remote cause of phenomena, holding that physical forces are competent and adequate for the production of all that we see and know of the two great departments of nature. Such a view necessitates the belief that matter is eternal, and a denial of any genesis for it whatever. To go farther, to seek to know whether the belief in the eternity of matter is rational or not—to seek for any power outside of the domain of the material, is to be unscientific—to pass the limits to which scientific inquiry must be confined. This is a convenient philosophy that drops investigation just at the point where it becomes difficult and interesting—at the point where the mind has awakened to a true scientific interest in the problem which phenomena have forced upon our attention! Phenomena are before us, and the true scientist and honest seeker after truth, will not be content, when estimating the potentialities of nature, until he has found an ultimate cause on which all things depend and from which they have proceeded.

As far as we know, the forces of matter are inherent in, and inseparable from it. We, at least, cannot separate or isolate them. Is it possible for iron to exist without its chemical affinities? Is not chemical affinity inherent in matter? As a fact we know that chemical affinity is active and potent wherever the proper and necessary conditions are present. The same is true of other physical forces, and they are always active whenever the necessary conditions are present. We cannot destroy their power and activity if we would. Hence when gravitation acts bodies will be drawn together; when cohesion is active, particles

form masses; and when atoms of different elements come within the limits of chemical affinity, a *tertium quid* will be formed. This law is invariable, like all the laws of nature, and always works the same result. Hence, union between elements, or compound radicals, will ever be found when the physical conditions necessary to the operation of these laws are present, and just so long as the conditions continue to be present. These laws and forces have been operative from the beginning, and material compounds have continued to be formed from the beginning, and are yet being formed, and will continue to form so long as the present physical conditions remain as they are. Chemical affinity gives rise to material compounds, but is not always sufficient of itself. Heat is necessary to many. Hence, if certain compounds are found, which we now know require heat to effect the union of their elements, we are justified in concluding that it was present when such compounds were formed. Illustrations of this law we have in great abundance. If silicic acid and lime be commingled they will remain unchanged until heat be applied to bring their atoms within the limits of their attraction.

That heat was present and active in the earliest combinations of matter the leaders of the modern school of science believe and teach; for they hold that matter was once in a gaseous or fluid state, and that this state was produced by heat, or at least that the heat, resulting from atomic combinations, was so intense as to fuse or vaporize the body so soon as formed. We may admit that such was the fact, and yet deny that all future phenomena have the same or alike genesis. Though in such a fiery cloud all the physical forces are present and active, we cannot conclude that they were the germinal power of all future phenomena, as is claimed by the modern scientist, just as we have in the seed the potentialities of the plant in all its growth, development and fruiting. But this much their presence and activity do show: that the bodies which they are capable of forming from the elements of matter, are formed, and invariably formed under purely physical conditions.

Now, if the vital force belongs to matter, and is in fact a force of matter, as chemical affinity, heat or electricity, then it was present in the fiery mist in which matter once appeared. It must also inhere in matter, and produce vitalized bodies as readily as chemical affinity produces chemical compounds, or cohesion masses of the particles of matter, when the physical con-

ditions necessary to its operations are present. So long as a sufficient degree of heat was present in the ancient world, so long were silicates formed, and so long were all other compounds of matter impossible, which are decomposed at such a temperature. The same should be true as respects vitalized bodies or living organisms. They are possible only under certain conditions; nevertheless if the vital agent be truly a material force, it should prôduce living organisms, as readily and as constantly, as does chemical affinity chemical compounds when the necessary conditions are present. The production of living organisms should be as possible and as common as the production of inorganic bodies. But is this the fact? Do living organisms arise from the spontaneous action of physical forces? Is nothing else necessary to their production? Are vital conditions the same in fact as the physical? This ought to be so, if the vital force is but a material force.

Carbonates did not appear on the earth until the temperature had become so low as to allow the union of the acid and the base, nor did living organisms appear until the physical conditions had become such as to permit their existence and perpetuation. Geology fully assures us of this fact. It was the principle governing the appearance of living organisms at every period of the earth's history, that the necessary physical conditions always preceded the appearance of new species, as they were successively introduced on the earth. As a fact, repeated introduction of new species has taken place from the earliest time at which living organisms first appeared, to the time that man came on the earth. Since his appearance we know not that any new organism has appeared. But it is claimed that sufficient time has not yet elapsed to allow this. Why not? What prohibits or limits the operations of the vital force after the appearance of living beings? Have we any knowledge of such prohibitions or limitations? If it be a physical force, living organisms should be as readily formed, and should be as common and abundant as are material bodies which have no limitations but physical conditions and atomic attraction. But as living organisms do not appear as readily and as commonly as material bodies, and that, too, when all the necessary and natural conditions are present, the reason of the fact may be presumed to lie in the specific difference there is between the vital and physical force.

Another fact is too prominent and important to be overlooked.

During the vast periods that have elapsed since the earth became solid, and numerous chemical compounds appeared in their crystalline form, there has been no advance in structure in material bodies. Crystals were not less perfect in structure, or less complex when they were first formed, than they have been since, or are now. There is nothing surprising in this when we understand the invariability of physical laws, and the immutability of matter. The reverse of this is true as respects living organisms. The organic world is characterized by its system of graduated structures. They begin in the simplest and end in the most complex. Between the extremes lies a series of perfectly graded living organisms,the last wholly unlike the first,and widely removed from it by the complexity of the structure and numerous differentiations. This gradation as respects structure is so great, and the increasing complexity so wonderful and characteristic, that it would seem that we ought to regard the power that molded these numerous grades of structure from the dead elements of the inorganic world, and in these graduated structures presented to us a most beautiful system of living organisms, as one, in every conceivable particular, wholly and specifically different from the forces that could do no greater work with matter than mold it into beautiful, lifeless, and motionless crystals. A silicate of lime or of iron, or any other base, is the same in whatever period of the earth's history it may have been formed. So with all other mineral salts. No improvement has appeared in their structure. No new properties, or organs, or functions have appeared in their crystalization. In the organic kingdom the reverse is true, and characteristic of the kingdom. Differentiation of structure and multiplicity of organs and functions are conspicuous and universal in the system of organized beings. It cannot be, then, that the force concerned in the formation of crystals, and the power that originated and differentiated living structures, are one and the same in nature and kind.

That crystals of the inorganic world are not the analogues of living organisms of the organic kingdom, is evident from another fact which obtains only in the latter department of nature. Modern scientists claim that the force of crystalization sustains the same relation to matter that the vital force does to organic matter and living organisms; that as the one gives us crystals of matter, the other gives us organisms of matter. Now if we find vital organisms exhibiting a function which is impossible with

crystals, the conclusion can hardly be questioned that the forces concerned in the production of these two classes of bodies, are as distinct and different as their productions. It is one of the inherent and essential attributes of the living organism that it reproduces its like. The mode or process of this reproduction is more clearly seen in the lower forms of animal life than in the higher. In the former class reproduction takes place by fissation or division, after which each part becomes the exact counterpart of the original, in every particular a perfect representation of it. These parts in turn when fully developed are themselves divided, and this procedure, though obscured and modified in the higher organisms, obtains throughout the entire organic kingdom. There is no exception. Every living organism is designed to reproduce itself before it dies, and all when normally developed are fully capable of reproduction. This procedure is as familiar to the scientist as any phenomenon in nature. He regards it as the differential attribute of living organisms. Such a thing in the world of dead matter is unknown. The purest and most beautiful crystals present no such phenomenon. They never divide so that each part becomes the reproduction of the original. Masses may grow in bulk by aggregation, and crystals divide by cleavage, but neither is this growth, nor this division a vital process. There is no movement or change of place between their particles of matter. There is no spontaneity in the cleavage of crystals, as in the division of living matter. When we shall see material bodies grow and divide, and the divided parts grow and divide, and each divided part ultimately attaining the form, size, and attributes of the original, it will then be time enough to affirm that there is no specific or categorical difference between crystals and living organisms, or between the physical and vital forces. The fact of reproduction places an impassable gulf between the organic and inorganic world, and positively forbids the supposition that living forms are but modified crystals, or the vital principle but a modified physical agent.

ARTICLE II.

WHY PHYSICIANS OFTEN FAIL IN USING ELECTRICITY. By GEORGE M. BEARD, A. M., M. D., of New York.

In the use of all remedies physicians fail, more or less, and expect to fail. No remedy acts uniformly well in any disease or in all persons. Neither opium nor chloral always produce sleep; but opium and chloral are the most certain remedies we have. Idiosyncrasies we constantly find, and they would appear to be more numerous in modern times than formerly. There may be an idiosyncrasy in regard to electricity; certain temperaments will not bear it; while some constitutions will bear faradism, but not galvanism, and *vice versa*.

Besides these general causes of failure in the use of remedies, there are certain special causes of failure in using electricity among practitioners. Of these causes I may note the following:

1st. *Insufficient acquaintance with the diseases for which electrical treatment is best adapted.*

The best effects of electrical applications are obtained in the large class of functional diseases, local and constitutional. Neurasthenia (nervous exhaustion), hysteria and hysteroidal affections in general, spinal irritation, exhaustion of the brain, general neuralgia, nervous dyspepsia, sick headache and hay fever; these are the maladies for which electricity is especially indicated.* In organic paralysis, for which, until within the past few years, electricity had been chiefly used, the results are far less satisfactory than in functional troubles. In rheumatism, in constipation, in spermatorrhœa and impotence, in uterine congestion, in dysmenorrhœa and amenorrhœa, in certain diseases of the skin, as ezcema and prurigo and herpes, electricity also acts well, as has been shown by long experience. In surgery the most satisfactory results are gained in the electrolysis of nævi, epithelial cancer, goitres and certain benign cystic growths; and in the relief of pain of malignant tumors.

The functional nervous diseases that are most likely to yield to electrical treatment are least understood by the profession; very

* In recent issues of the New York *Medical Record* (Sept. 15th and Oct. 20th, 1877), I have discussed in some detail this class of disorders.

little has been written in regard to them, and of the little, only a part has been read and understood. Increased attention is now given to this department of pathology; specialists and general practitioners are beginning to examine into the symptoms and history and treatment of this large class of neuroses that are so common in all civilized lands, but especially in the northern and eastern part of the United States.

2nd. *Insufficient knowledge of the general therapeutical action of electricity.*

The old notion that electricity is a mere stimulus, although exploded long ago, yet lingers in the profession and among the people. The stimulating action of electricity is its primary action, its secondary effects are sedative and tonic. It is now eleven years since I published a paper in the *Medical Record* on electricity as a tonic in various diseases of debility. At that time, no idea of electro-therapeutics was more revolutionary; at the present time, very few who are familiar with the use of electricity in medicine, and none who are thoroughly familiar with general and central applications, would dispute this fact.

The fact to be remembered always is that electricity is to be used for the improvement of local and general nutrition.

Improvement in sleep is the first sign, oftentimes, that electrical treatment is doing good; it is usually observed at the outset of a course of treatment—sometimes after a single application. Elevation in the temperature is observed during or immediately after an application. The majority of nervous sufferers have cold feet and hands at times, if not all the time, and many are annoyed by crawling chills up and down the spine. The effect of general faradization—as was distinctly and repeatedly pointed out a number of years ago—is to quicken and equalize the circulation temporarily, during or after each application, and permanently after a course of treatment. Increase of appetite and digestive power, increase in muscular strength and in the weight of the body, are also frequent effects, both of general faradization and central galvanization.*

Those who assume, as all European writers formerly did, that electricity is a stimulus merely, will use it in just those diseases where it does least good, and will omit to use it in those diseases

* The detailed explanation of these methods of using electricity must for want of space be omitted here.

where it does most good, and consequently may become disheartened with electro-therapeutics.

General faradization and central galvanization are among the most powerful tonics and sedatives in the whole range of remedial agencies. Those who receive this fact will know when these methods are to be used. They will not ask the name of the disease, nor the symptoms merely, but the state of the system; if sedative and tonic effects are needed, electricity in the above methods is called for—whatever the name of the disease may happen to be.

3rd. *Insufficient acquaintance with the management of batteries and the details of the applications.*

Electro-physics as taught in our schools, academies and colleges, is largely erroneous in theory and in general principles, and when physicians come to study the working and keeping in order of batteries they are sorely puzzled.

Details of applications can be learned only by study of text books, or by observing the operations of experts, just as in microscopy, ophthalmology and gynæcology. To the majority of physicians electricity means but one thing—one mode of application, and that an unsystematic one for all cases and conditions alike, whereas there are several different forms of application, varying with the nature and locality of the disease.

A certain degree of handiness in the use of instruments, which is acquired only by experience, is needful for the satisfactory employment of electricity in medicine. One needs also to know how to replenish and repair batteries, within certain limits, at least, so as to be in a measure independent of expressmen and instrument manufacturers. I have known many intelligent and ingenious physicians to be non-plussed by elementary questions relating to batteries, and to take or send them to the factory for injuries that in five minutes or less could have been adjusted at home.

4th. *Want of perseverance.*

The maladies for which electricity is chiefly used are chronic and require a kept up, persistent treatment.

Some are put out by failures that meet them in their first experiments. The first case may be a failure and they drop electricity forever.

The full tonic effects of general and central applications are sometimes not felt for weeks—perhaps not until after the treatment has been suspended.

ARTICLE III.

ENURESIS. By JOHN BRYSON, M. D., of St. Louis.

CASE I. Emma B. a child four and a half years of age, who had had noctural enuresis from birth, was seen April 12th, 1876. She was healthy, well-nourished and robust. A careful examination of the urine revealed nothing pathological, whatever. With the view of testing the sensibility of the bladder neck, I introduced a soft rubber catheter. The child gave every evidence, both when it was introduced and when it was moved about, that the usual sensations were felt. There certainly did not appear to be any lack of sensibility about the bladder neck and urethra. So far as the mother could tell, the child did not void her urine any more frequently during the day than other children, nor was she in any more haste to reach the vessel. In October, 1876, she had an attack of scarlatina, for which she was treated by another physician. In January, 1877, I again saw the patient on account of the nocturnal incontinence which had continued all the while. Examination of the urine now showed it to be acid, lessened somewhat in density, and to contain pus, caudate cells from the renal pelvis and an increased amount of mucus. The bladder was now highly sensitive, the calls to urinate being tolerably frequent and the end of the act accompanied with some vesical tenesmus. Slight vulvo-vaginitis existed. Patient was considerably run down in health, nervous and fretful. She was given citrate of iron and quinine citrate of potash and belladonna with marked good results so far as the pyelitis and vesical catarrh were concerned, but the *enuresis nocturna* continued. On the 12th of January I commenced measures to strengthen the sphincter vesicæ, which I was now satisfied was too weak to resist the action of the detrusors after the bladder had become well enough filled to stimulate the latter to act. These measures consisted in the administration of tonics and the application, daily, of the induced current of electricity, after the method of Dr. Ultzman, of Austria. The method of procedure is as follows: A small metallic rod, connected with one pole of a battery, is introduced into the rectum while the other pole is applied to the thigh or pubes. The application should last from five to ten

minutes, and should be made daily. In a little more than a week the child began to improve, and, by the middle of February, had ceased to wet the bed at night, and has not again done so. *The evidences of pyelitis and vesical catarrh continued, however, until the 12th of August,* at which time I last examined the urine; and even now the patient has to be taken up once or twice during the night to use the vessel; but, always at her own request, and the urine is not voided unconsciously in bed.

CASE II. Mrs. H., æt. 27, has been under my professional care since 1873 but only during the following year, 1874, did I learn that she had suffered all her life with *enuresis nocturna.* The lady was healthy, well nourished, and is now the mother of two healthy children. At no time has there appeared anything pathological in the urine save once, and that, the result of cauterization of the vesical neck. She was able to retain the urine completely during the waking state; but unless she rose to empty the bladder about every four hours, during the night, would surely find that it had escaped unconsciously. During the waking state the calls to urinate were normal and not too frequent (about four times a day), and the introduction of the catheter gave evidence that there was no lack of sensibility about the urethra and vesical neck. If, during the waking state the call to void the urine was not answered at once, there soon appeared an urgent desire, though the urine could be held for half an hour with an effort; at the end of that time the sphincter appeared to become worn out, and the passage of the urine occurred in small quantities of perhaps an ounce at a time. The daily quantity of urine, on an average of six times, was fifty-one ounces, the extremes not differing six ounces. The entire list of remedial measures, below alluded to, were resorted to without the least effect, with the exception of the cauterizing of the vesical neck and urethra with argentic nitrate, and the influence of this last was only temporary. About the middle of January last, I began the application of the induced current, as above described, using the vagina instead of the rectum in this case. A full month elapsed before the treatment produced marked results; but how thoroughly it was followed I cannot say, as the patient was taught to make the application herself. March 10th she slept all night and did not void any urine for the first time. This state continued up to the 22d day of June, when a relapse occurred, the application of the electricity having been discontin-

ned for several weeks. The relapse lasted about a week, again yielding to application of the electric current. The patient has since been well, but the applications are still made about once a week.

CASE III. P. B., æt. fourteen, a brother of the girl Emma B., was treated at the same time with the local application of the induced current, and recovered entirely in two weeks, and has been well of nocturnal enuresis ever since. In this case there was never, at any time, chemical or microscopical evidence of a pathological condition of the urinary passages.

In none of the above cases was there evidence of scrofula, rachitis, disease of the rectum, lithiasis or worms. If the enuresis was a simple, slovenly habit, in two of the cases, at least, it had resisted everything likely to overcome such habit. The mortification experienced by Case II was extreme. In one or more of these cases, each of the following methods of treatment had been ineffectually tried, viz:

1st. The constitutional embracing tonics, deprivation of drink towards night, and cold baths, emptying the bladder at bedtime and rising frequently for that purpose.

2nd. The so-called moral treatment; in Case III, castigation.

3rd. So-called specifics, such as camphor, ergot, cantharides, belladonna, alkalies, astringents, iodide of iron, blistering over the sacrum, introduction of the sound, cauterizing the vesical neck, injection of warm water into the bladder or the so-called "dilation process," arsenic, bromide potassium and chloral.

Of other mechanical means that have the recommendation of authority, we have Trosseaux's urethral (or perineal) trus, tying a knot on the back to prevent lying in the supine position; Sir D. Corrigan's method of sealing the prepuce with a drop of collodion at night; application of an elastic band round the penis (certainly a very questionable procedure), or, in the female a plug in the vagina; but of these, none were tried for reasons that to me appear too apparent to require enumeration.

The conditions necessary to the existence of true enuresis are extremely difficult to understand in the light of our present physiological and pathological knowledge; and I have presented the foregoing cases with the hope that a clinical study of them may assist in the elucidation of a few points in connection with this disease. When we remember that, at first, owing to the

weakness of the sphincter muscles, the urine and feces escape from the infant during sleep, without the experience of any sensation whatever; that it is only after the 10th or 12th month that any sensation accompanies the act, and that we cannot properly speak of enuresis in a child under two years of age, the inclination to conclude with Ultzman that enuresis is simply a weakness of the sphincter, merely the survival of a physiological condition in the infant, is almost irresistible. The well-known activity of the detrusors in the child would seem to strengthen this view; nor does the facts, specially called attention to by Niemeyer, that there is no failing of the sphincter during the day, no dribbling of the urine, no unnaturally profound sleep, and no evidence of palsy appear to contradict it. But any theory that would attempt to account for this condition that did not take into account the part played by the nervous system, in the act of micturition, would be very imperfect, and the introduction of this nervous element greatly complicates the clinical study of the disease. I believe, however, that we will simplify our study of the condition by attempting to throw light on the physiological, by a study of the pathological condition instead of proceeding in the opposite direction.

1st. We know, then, that *enuresis nocturna* is the prolongation into later life, of a condition (*enuresis continua*), that exists physiologically in the child.

2nd. We observe, clinically, that the *enuresis continua* of later life, disappears very much after the fashion of the physiological condition in the child, viz.: by first becoming *enuresis nocturna*, and afterwards ceasing to be an involuntary *and* unconscious act.

3rd. We know that in infancy and childhood, peristaltic movement is very active, and micturition is a somewhat modified peristalsis. This activity is doubtless due, to some extent, to the well-known activity of the reflex mechanism in childhood; but I think that Case II will show that it may be due almost entirely to the preponderance, anatomically, of the detrusor over the sphincter muscular fibres. This was a case of enuresis in an adult person, where no special over-activity of the reflex centers could be made out. The patient was the reverse of nervous. As long as volition had to do with the retention of the urine, there was nothing abnormal until it was attempted to retain it for a certain time *id est*, until a weak sphincter vesicæ was put upon the stretch.

4th. We know that, during the waking, conscious state, when the body is maintained in an erect position, the sphincters are tonically active, so that it is with great difficulty that the detrusors overcome them, in certain cases, as, for instance, the well-known inability of the novice to pass the urine while riding in a wagon or on horseback. During the unconscious state of sleep, this activity of the sphincters is absent, to a great extent, at least, and in the case of an organically weak sphincter vesicæ, it appears that the act of micturition would be more easily excited by its natural stimulant (the fullness of the bladder), and would be more easily performed.

5th. But the tonicity of the sphincters can, by habit, be overcome—the novice can learn to pass his urine while riding in a wagon or on horseback; and in exact parallelism with this we find that the nocturnal enuresis of some children is simply a slovenly habit.

6th. In cases of retention of urine from obstruction, urethral spasms, etc., where relief comes without instrumentation, it usually comes during the unconscious state of sleep, the patient waking to find the bed deluged with urine.

7th. We know that the bladder neck, while governed by an intact spinal cord, will stand a pressure of twenty inches of water; but a pressure of six inches only when the lumbar spinal cord is destroyed, or the vesical nerves are severed. This being the case, it appears we are entitled to believe that the restraining influence of the tonic contraction of the sphincter is not brought into play until the pressure of the accumulated urine exceeds a pressure of six inches of water; and that the reflex and voluntary nervous influences remaining the same, all above this that the bladder would be able to retain, would depend on the relative strength and activity of the detrusors and sphincter.

8th. That micturition may be a purely reflex act, is shown both by the experiment of Goltz and clinical observation of certain cases of disease of the cord where softening takes place above the lumbar region. But such reflex act does not appear to occur except in connection with a *full* bladder. Clinically, inflammation with hyperæsthesia of the bladder does not appear to influence this involuntary reflex act.

9th. It appearing from the above that the proper stimulus to the act of micturition is a full bladder, *id est,* pressure from within on the neck, it seems that we are entitled to believe that

the quantity of the urine secreted, would have some material influence on the nocturnal incontinence. Such, indeed, appears to be the case. Belladonna, since the time of Trousseaux, has enjoyed high repute as a remedy in this disease; and, later, opium, hyoscyamus and chloral have been used with reputed success.

10th. Nocturnal incontinence of urine does *not* constitute a feature in those diseases of the spinal cord where reflex irritability is supposed to be heightened, either in the adult or the child.

11th. It appears that a very strong contraction of the detrusors is necessary to overcome a comparatively slight obstruction offered at the neck by the sphincter, or, by pathological condition. We observe cases where quite slight obstructions are overcome with great difficulty by an hypertrophoid detrusor, aided by a fixed diaphragm and contracted abdominal muscles. To overcome this difficulty, we see the patients resorting to all sorts of grotesque positions and to a great variety of methods to bring about the necessary relaxation of the sphincter.

12th. Of the purely nervous disorders of the bladder, *chorea vesica* is, perhaps, the best example; and this offers marked features to distinguish it from enuresis; in fact, it is not necessarily accompanied by the latter at all.

13th. As a condition nearly the opposite of *enuresis nocturna*, may be mentioned cases of stammering bladder, well observed instances of which are on record by Sir James Paget. In these cases the activity of the sphincter appears to be developed in excess of that of the detrusors.

What, then, are we entitled to believe to be the essential pathological conditions in enuresis nocturna? I believe, broadly stated, it may be said to consist of an absence of the proper relation of the sphincter and detrusor muscles. To my mind, the evidence seems to point to the sphincter as being most at fault and, further, to warrant the belief that the part played in this disease, by the nervous system, is a very insignificant one, if, indeed, it can be said to be concerned at all in a pathological sense.

ARTICLE IV.

DEVELOPMENT OF CONNECTIVE TISSUE IN THE VITREOUS HUMOR.*

By WILLIAM DICKINSON, M. D., of St. Louis.

In the presentation of any subject specially included in that part of surgery denominated ophthalmology, I may be confronted by the conviction expressed or felt on that part of the general practitioner, that "those subjects belong to a specialty, and therefore they possess no interest for me." Without entering upon an argument to prove that this is a mistake, a grave error, I shall content myself with the simple assertion, that affections of any particular part of the human system, though they may be usually consigned to the treatment of specialists, *are* not and *cannot* be foreign to the vocation of the good physician; and, if for no other reason, because the family physician is commonly the first person who is consulted in regard to them; it is, of course, optional whether or not he shall treat the affection or commend the sufferer to the kind offices of another. If, however, he is even theoretically familiar with the nature and termination of the particular disease presented, he is in a position to give intelligent advice respecting it, which certainly it is his duty to do, at the very moment of its earliest invasion; for the early detection of quite a large class of diseases of the eye, is of infinite moment to the patient; and delay of treatment, for even a single day, may determine his restoration to vision, or his doom to blindness. The classic proverb, "*Obsta principiis*," arrest the beginnings, obtains as emphatic application and illustration in physical ills, as in moral maladies; and it is but a truism to declare in respect to ophthalmic diseases, as well as of all other forms, that early and appropriate treatment is always followed by the best results.

With this introduction I beg your attention to the narrative of a case of a development of "Connective tissue in the vitreous humor," with brief preliminary observations upon some of the pathological conditions to which this body is liable. Opacities of the vitreous humor are sometimes occasioned by hyalitis, *i. e.*, inflammation of the hyaline structure, but more frequently they occur in consequence of inflammatory conditions of the retina or

* Read before the St. Louis Medical Society, December, 1877.

choroid, or of the ciliary body termed cyclitis, and sometimes from the extravasation of blood in the vitreous chamber whether of idiopathic or traumatic origin. From all these causes the occeurrence of hyalitis is not unfrequent; but the development of connective tissue in the manner and to the extent presented in the case to be narrated, is extremely rare. My friend, Dr. Gebser, examined, at my request, the case on several occasions, concurring in my diagnosis; and in respect to its rarity he stated that Dr. Knapp, of New York, throughout the wide range of his long observation and experience during his residence in this country and in Europe, had never seen but three cases of a similar character.

The vitreous humor constitutes about four-fifths of the bulk of the normal eye, has a position the most posterior of the three dioptric media, and its perfect transparency is indispensable in order to admit of perfect vision. It is surrounded by a delicate membrane, formerly believed to be distinct and peculiar, but latterly has been found to be identical with the "*membrana limitans retinæ*." Though lying closely upon the retina, it has no connection with it, except at the entrance of the optic nerve and at the ora-serrata. The nutrition of the vitreous humor is derived exclusively from the blood vessels of the ciliary processes.

Virchow regards the vitreous body as mucous tissue. Rindfleisch says: "In the fœtus, mucous tissue abounds; but at the period of birth, excepting the jelly of Wharton of the umbilical cord, there is only yet found a small, but not, on that account, any the less important remains of mucous tissue in the vitreous humor of the eye, which, remaining with a wonderful stability of composition, continues till the end of life." Similar to these opinions is that of Weber, who states the vitreous humor consists of a network of cells which anastomose with one another, and in whose meshes a mucus fluid is found. While Hrule regards it as a homogeneous substance of a gelatinous or cellular nature.

Hyalitis is not usually excited by wounds, however much the vitreous is broken; even a cysticerous hanging from the retina and floating in the vitreous is comparatively innocuous. The extreme rarity with which hyalitis follows disturbances of the vitreous, which occur in some operations for cataract, affords evidence of its comparative exemption from primary inflammation. And though the track and direction of foreign bodies, that have entered the vitreous from without, may be traced by the

discoloration consequent upon hyperplasia of the cells of the part through which it had passed, yet the vitreous body is incapable of inflammation from irritating causes sufficient to produce it elsewhere. Consequently, inflammatory products there found, must in part be the result of immigration from the surrounding tissues. The products or exudations which are developed in consequence of hyalitis are those which traverse the vitreous, without regard to the nature of the irritation and are capable of a farther development, *i. e.,* the generation of new tissue, resembling ordinary connective tissue.

Hyalitis may be either acute or chronic, and the opacities may be either diffuse or circumscribed. On ophthalmoscopic examination we may find the whole vitreous humor diffusely clouded, chiefly by exudation cells, which condition renders the details of the fundus quite invisible, or appear as if seen through a thin, grey film or veil. In the more advanced stages, large floating exudations are thrown out and appear as globules or shreds in bundles, with or without pigmentation; or fibres scattered or interlaced. These are described as filamentous or flocculent opacities. Whenever a diffuse opacity of the vitreous occurs suddenly, and, after clearing somewhat, it again recurs perhaps several times, the integrity of the eye is seriously and dangerously threatened; for very often there results detachment of the retina.

Extravasation of blood into the vitreous sometimes takes place even without any form of violence having preceded; the aspect with the ophthalmoscope, then, is of a peculiar bright red reflex. If the hemorrhage be very extensive and diffuse, it may not be possible to illumine the interior of the eye at all, the fundus looking quite dark. The sight, of course, is generally very greatly and very suddenly impaired, the patient having the sensation as if there was a dense red mist or veil before the eye. Again, after absorption has progressed for some time, and the vitreous has regained much of its normal transparency, a *fresh* extravasation may take place, and this may recur several times. This recurrence, also, is to be regarded with great anxiety, as it may be followed by detachment of the retina, glaucomatous complications or atrophy of the eye ball. The color of most opacities is grayish blue. In quickly relapsing inflammations of the eye ball, and in long continued inflammation of the retina or of the choroid, the hyalitis continues. Then the connective tissue

formations are usual. For each new quantity of connective tissue which arises, a certain quantity of embryonal connective tissue is requisite. The latter consists of nucleated, membraneless masses of protoplasm, and forms, where it occurs in larger accumulations, a very soft elastic, pale grayish substance. This connective tissue is identical with the accumulation of emigrant colorless blood cells, which has been taught us by Cohnheim.

PROGNOSIS.—In most cases of hyalitis the prognosis must be involved in a high degree of doubt. The patient always desires a positive opinion in regard to the *complete* restoration to perfect vision. The present stage of ophthalmological science will not authorize us to assure him of his perfect recovery. It is, however, true, that by the diligent and persistent employment of a judicious course of treatment, in many instances, he will be rewarded by the full realization of his hopes. When hyalitis is idiopathic, recent and exists to a slight degree, and not occasioned by or complicated with diseased conditions of the parts contiguous to the vitreous, its subsidence may usually be confidently predicted, and no trace of the opacity may remain. If, however, it is more advanced, or, if determined by pathological conditions of other structures with which the vitreous is in anatomical relation, the prognosis must be given in a very guarded manner. For, usually in such cases, neoplasia have been formed, which, to a greater or less extent, have become organized and the entire absorption of these products is almost impossible. Some of them may shrink, some retrograde and partially disappear, some of the groups of nuclei may become fatty and be augmented by other products into a solid body, some degenerate into scales of cholesterine, which, when numerous, look like a silvery shower. But connective tissue neoplasia, with certain restrictions, must be pronounced permanent.

TREATMENT.—The treatment of hyalitis, and its consequent opacities in the vitreous humor, must obviously be guided by the cause *i. e.*, whether they are due to, and a part symptom of inflammatory affections of the deeper tunics of the eyeball, or, perhaps to intra-ocular hemorrhages, caused by rupture of some of the choroidal vessels, whether of traumatic origin or not. In the former case our efforts must be directed to combating the primary disease. Science has not furnished us with specifics in the treatment of these affections; our chief reliance, therefore, is upon local depletion and upon medicinal agents, of

which the various salts of mercury still constitute our sheet-anchor. The absorption of the vitreous opacities may be greatly aided by preventing all congestion of the choroidal or retinal vessels. This is accomplished by depletion, counter-irritation, and, I think I have derived demonstrable benefit from the administration of Tr. Ergot; and, to supplement the whole, I have employed galvanism with obvious advantage.

When membranous opacities have for a long time resisted all efforts of absorption, they may be rent into fragments by fine needles introduced behind the lens into the vitreous body; by this means the dense opacities being removed from the *axis* of vision, vision itself will be much improved.

Alternations of improvement and relapse is one of the most disheartening, as well as most serious characteristics of this disease. The opacities may have gradually and uninterruptedly continued for a long period to disappear; vision has correspondingly improved; marked progress has taken place day by day; letters on each succeeding day being discerned which the patient was totally unable to perceive on the preceding; the degree of perfect vision is almost attained, and hopes of a speedy and complete restoration are confidently indulged; the summit, after a long and toilsome effort, is almost reached, when, without obvious cause, at his next visit, we find ourselves like the fabled Sisyphus again hurled to the bottom, at the starting point, to renew and repeat, in toilsome succession, our efforts in the, perhaps unequal struggle, of preventing threatened blindness.

We will now proceed to the narrative of the case which has suggested these observations. E. B. S., a man from the northern portion of this State, aged 20 years, of medium stature and general physical development, on April 24th, 1876, engaged himself as a herdsman. For the two months immediately following, the weather was unusually wet and cold, and, as a consequence, about May 10th, he had two chills. The same state of the weather recurred during the first week in July. His vocation, of course, obliged him to be exposed to these vicissitudes from early morning till evening, and often till 10 or 11 o'clock at night, and though well protected by proper clothing, rubber overcoat, etc., he still suffered much from cold and was persistently troubled with a cold and cough. On July 3d, to vary somewhat his experiences, he was accidentally thrown from his horse into a creek while fording it. Being at a distance from home, he could make

no change of his clothes; he was, therefore, compelled to wear the same, saturated with water during the entire day. He was accustomed, each day about noon, to take a nap, lying on the ground; he spent much of the time in reading, the sun often shining upon the page. On one occasion, July 15th, while thus reading, he observed his vision to become dim, which continued to increase the longer he read, obliging him to bring the page nearer the eye, till, at last, he was compelled to cease reading. In consequence of this occurrence, he was deceived in regard to the true distance of objects, they appearing more distant than in reality, and enveloped in smoke. On the morning of July 28th immediately after rising, there appeared a cloud, as he described it, before the left eye; a haziness which increased in density during the day, till, at sunset, he was scarcely able to distinguish objects at even three or four rods distant. To this obscurity was conjoined the remarkable peculiarity that the objects presented a greenish aspect. On the day following, no objects were visible with this eye. This condition was accompanied with a dull, aching pain in the eye. On the next day he consulted a physician, who applied a blister to the left temple, and, subsequently another, who gave him a collyrium, and ordered hot poultices of meal and milk to be applied to the eye at night.

Under the treatment employed the haziness seemed to fade in some degree, but remained essentially as before. On August 10th, he first presented himself to me. All external appearances of both eyes were normal, and the irides were of a hazel color.

With the ophthalmoscope the vitreous was ascertained to be hazy, and to such degree as to prevent detection of the vessels of the papilla and fundus; the other dioptric media were of normal transparency. He could only with difficulty, perceive No. xx of Snellen (letters $\frac{3}{8}$ inch in length). My diagnosis was hyalitis, probably occasioned by intra-ocular hemorrhage, proceeding from the vessels of the choroid or retina. Under the treatment of Pot. Iod. and galvanism, the haziness rapidly disappeared, and vision, to a corresponding degree, returned. On August 20th, twelve days after commencement of treatment, he was able to read No. 2 of Snellen (being next to the smallest type employed).

At this juncture, wishing to see a friend at home who was dangerously sick, he went home, August 22, against my earnest protest. He remained at home one month, and, in the meantime, had several chills. For the first two weeks his vision continued to im-

prove, after which the original symptoms gradually returned. Being alarmed at his condition and prospects, he returned to me September 22d. At this date with the left eye he could only see at 13 inches No. XXX (letters of ½ an inch in length); but with the right, he could discern even No. 1, though a little obscurely, as haziness of vision had a day or two before supervened in this eye also. During the ensuing two weeks, there appeared a black spot protruding, apparently, from the external angle of the right eye, into the field of vision one-third inch wide and one inch in length, as he conceived, but apparently 8 or 10 inches distant from the eye towards the right side. This remained for a few days, and gradually disappeared entirely.

I placed him immediately under the influence of mercury. It was exceedingly interesting to note the daily improvement of vision and the phenomena attending it under the influence of this medicinal agent. Soon as its specific effects were experienced, with the left eye he first perceived a bright, clear spot, a little to the right of the point of fixation, but this was not constant, for a few moments later, after a lateral excursion of the eye, this spot assumed the appearance of a hole, a perforation through an opake veil, interposed between the eye and the object viewed; and, again, a few minutes later, he could scarcely discern any object at all. Brilliant objects, e. g., the moon, from the first, appeared of a dense red color, "red as fire;" but later, all objects assumed a light green tint, and, in different portions of the opake veil, there seemed to be depressions presenting greater illumination, as luminous rifts amid clouds in the sky. As convalescence progressed, before rising in the morning he sometimes could see as well with the left as with the right eye; but, after rising and assuming the erect position, this clearer vision declined. However, the general opacity continued to diminish, but in a different manner than on former occasions; whereas, previously, a general absorption of the pathological products took place, there still remained in the vitreous humor a large opacity of black color and of a curved shape, one inch in length, having rough, scraggy projections on either side, and ⅛ of an inch in breadth. Now, at this time, the general diminution of the opacity is uniform. The improvement of vision on some days was so great as to be manifestly more clear in the after part of the day than in the morning. Upon awakening one morning, about two months later, he discovered he could scarcely discern any object with the

right eye; not even letters ⅓ an inch in length. No pain or or other symptoms accompanied this visitation, nor could he ascribe it to any form of violence. After a free purgation by Mag. Sulph. followed by Pot. Iod. vision in this eye again rapidly improved. When he lay upon his back, or his head was thrown backward, there supervened, as he described it, a bulging, coming down from above in the right eye, which appearance glided away when he again assumed the erect position, though, for a brief period, a few minutes, there remained a haziness generally diffused. With the view of relieving choroidal congestion, from whence came, as I believed, the sudden effusions that obscured vision, I administered Tr. Ergot, which was long continued; also the use of Hydg. Iod. and Pot. Iod. and the employment twice a day of galvanism. Under this treatment he was soon able to read No. 2 of Snellen, with either eye with equal distinctness; but objects at a distance were seen clearer with the left eye.

It would be needless to detail minutely the changing symptoms developed during the progress of this interesting case. It must therefore, suffice to simply state that, after several alternations of improvement and relapse, our patient regained vision sufficient to enable him to read with ease print of much smaller size than the average employed in book printing, and this condition had remained permanent to the date of last report, at which time several months had elapsed since he returned home.

With the ophthalmoscope I observed that the degree of improvement in vision was in exact correspondence with the diminution of the general opacity; but, after this had to a good degree disappeared, there remained still a large, well defined veil or screen occupying a verticle position, but a small angle with the observer; this was composed of two triangular masses of connective tissue, the apices of which, nearly in the center of the vitreous humor, seemed agglutinated to each other, while by their bases, about ¼ inch in breadth, they were suspended and retained in situ by neoplastic filaments extending in various directions toward and attached to the retina. In consequence of the peculiar shape and eccentric position of these masses, they not being in the *axis* of vision, vision itself was rendered possible. Other similar neoplasia, but of less magnitude, were visible, scattered throughout the posterior portions of the vitreous humor, interfering only with peripheral visions. Though a good degree of useful vision was thus obtained from conditions

so adverse and forbidding, I cannot divest myself of the apprehension that, during the progressive absorption of the plastic material there present, and its consequent contraction, increased tension of the neoplastic filaments which support the masses of connective tissue will take place and ultimately detach the retina from the choroid and permanently impair or entirely compromise vision.

No. 620 LOCUST ST.

ARTICLE V.

ON THE TREATMENT OF FRACTURE OF THE FEMUR. By EDW. BORCK, M. D., of St. Louis.

We possess many apparatuses and contrivances for fracture of the femur, and while there are so many it shows that none are as yet perfect. Each of them has advantages and disadvantages more or less; but I think, that of all, the straight splints are the least useful and are unnatural. Look at all the long splints—Munger's, Walton's, Liston's, Physick's, Desault's, Hodge's and Gilbert's apparatus, and many more, there is not one that is comfortable to the patient. They all look more like torture machines.

Morgan's fracture bed, Swinburrie's method, and Buck's apparatus are preferable to the long splints; they all aim at keeping the limb *straight* and preventing shortening by extension and counter extension. The patient is kept flat on his back, shoulders low, perineal band extension by the foot and leg in various ways. The knee can only bear from fifteen to twenty pounds of extension weight by the leg, hardly enough to overcome the rigidity of the muscles of the thigh, while the bandages upon the leg and foot will irritate the skin; the perineal band will also produce irritation; still this may be mitigated by substituting adhesive strips. Nevertheless, see what an amount of stretching has to be done.

Fractures of the femur are mostly oblique, and occur most frequently in the upper fourth of the shaft, next, in the lower fourth.

In the first, the displacement of the upper fragment is due to the combined action of the psoas and iliac muscles, perhaps aided by the pectineal and short head of the abductors, and outwards by the external rotators. The lower fragment is drawn up by the flexors of the thigh and outwards by the tensor, vastus and gluteal muscles, and then you have deformity and angularity. Now the object is to keep the fragments as nearly as possible in their natural positions, and thereby obtain the least possible shortening. All surgical writers guard us against shortening and other defects, and recommend the use of compresses, splints, bandages, etc. Dr. F. H. Hamilton says the best coaptation of the fractured ends of the bone, aided by overcoming the contractile resistance of the muscles, is all that can be accomplished. There will always be some shortening in these fractures. Now, if we can acomplish what Dr. Hamilton says, or as near as possible to it, we do well. But can the fractured ends be kept in coaptation by the long splint? Can the contractile resistance of the muscles be overcome by keeping the patient in a dorsal position, with the limbs straight, the shoulders low, while at the same time employing traction? I think not, for it is not the best position to relax such powerful muscles as those of the thigh, and in particular not for those that do the most mischief towards producing the deformity. The tonicity of the muscles can not be overcome by employing heavy weights and strong pulleys; they are only more irritated by that procedure. Spasms are produced in addition. You may tire them out in time, but the patient will be tired out also. I have never seen any patient comfortable with the long splint. To produce relaxation and coaptation we want a position as near as possible to the natural one, and position is the double inclined plane.

Now, anybody can try for himself. Let him lay down flat on his back with his legs stretched out for one to three hours, and he will see and feel what a hard work it is to keep in such a position. But you feel immediately relieved by flexing your legs and raising your body into a semi-inclined position. Try it and you can at once sit thus for hours, without becoming tired. Why? Because your muscles are relaxed and are at ease. By flexing the leg, you relax the biceps, semi-tendinosus, and semi-membranosus. You next have to overcome the rigidity and action of the psoas and iliacus muscles. Here you have a double action to overcome. When these muscles act from above, they

flex the thigh upon the pelvis naturally, and rotate the femur outward. If they act from below, the femur being fixed, these muscles bend the lumbar portion of the spine and pelvis forwards naturally. I do not see how this double action can be overcome by keeping the body and legs straight. The semi-inclined position of the body and flexion of the leg, seem to me to be the nearest to a natural position, and the most likely to overcome the difficulty under consideration.

I know well that when a bone is fractured, the muscles will contract, but I also know that they will relax completely if left alone, when put in an easy position. It may also be said that while the tension of one set of muscles is taken off by this position, it necessarily increases that of another or an opposite set. It is true, but the double inclined position reduces this evil to a minimum. The double inclined position is also preferable in fracture of the femur immediately above the knee-joint, for here the gastrocnemius muscle drags the lower fragment backwards into the poplitial space, and this you can only overcome by flexing the leg. All the straight splints and pulleys will do no good. This is admitted even by distinguished surgeons who do not employ this method.

I think, that, in the treatment of fracture of the femur, the long, straight splint is inconsistent and unnatural, and does not fulfill the purpose at all; that by the use of them deformities and shortening must necessarily be produced. I believe that any fractured femur, treated with Physick's or Desaults's long splint can be instantly recognized post mortem by the way union has taken place, the upper fragment pulled upward and a little outward, the upper end off the lower fragment pushed inward, the newly formed callus uniting them obliquely, if the fracture has been in the upper fourth of the shaft; and why? Because the body and leg have been kept straight and the femur is not straight, not perpendicular. Take the body standing erect, the heels close together; then draw a perpendicular line from the umbilicus down between the two heels; also a line from the axilla, on both sides down, perpendicular, and across the line below and above, to form an oblong square. Say the transverse line from axilla to axilla measures eighteen inches; the transverse line below the feet also eighteen inches, nine inches on each side from the line drawn down from the umbilicus; take this position as the natural one, the arms pending; then look at

the femur. Is it perpendicular or is it oblique? A line drawn from the great trochantor to the internal condyle, runs from above downward and inward. The internal condyle is, therefore, longer than the external one, to make up the plane, straighten the lower leg, and bring the knee-joints together near the line of gravity to the body; the femur is not and does not hang perpendicular from its socket. If it did, our legs would be apart, instead of together, in the erect posture. Now, if the long splint is applied from the axilla perpendicularly down below the foot, the body will not touch the board anywhere except in the axilla. It will be two or three inches away from the crest of the pelvis, and about six or seven inches from the foot; the foot is pulled towards the board and the limb bandaged, the intervening spaces filled up with cotton; in a great many cases the limb is still dragged more outward; this acting as a lever must necessarily push the upper end of the lower fragment of the femur inward beyond its natural line. If, instead of pulling the foot or heel six or seven inches, or more, towards the board, the foot should be left in its natural place, and this space filled up by some soft material, it might answer a better purpose to keep the femur in its natural position.

To get a good result in any fracture, it is necessary to keep the bone as nearly in its *natural* position as possible, so that the femur may be kept in its natural position. But, if you expect to keep the femur straight, in the actual sense of the word, by a straight splint, you will certainly be deceived. It will be crooked. This is what we should avoid, and we can only do it by the double inclined plane apparatus. The word "*straight*" has misled many and will mislead more.

My method of treating those fractures is simple: To put the patient on a firm mattrass; to elevate the foot of the bed three or four inches; the shoulders also elevated, even as much as the semi-sitting posture; the fractured thigh upon a double-inclined, firm, yet soft, pillow, the foot against a board or pillow; the body and the leg will make all extension and counter extension needed. The pillow must be made to fit and suit the individual case.

I have treated cases, particularly in some old persons, with this simple means with success and ease to the patient. Sometimes, if necessary, I put, in a day or two, an adhesive strip about two and a half or three inches wide, along the inside of the thigh,

below the fracture, forming a loop at the knee and run it up on the outside; the same as done and used at the foot; apply another piece of plaster or a bandage around the thigh, to keep the first in its place.

I fasten a post at the foot of the bedstead, not opposite the foot of the injured limb. If it is the right leg, I put it a little to the left of the median line from the umbilicus. A roller is fixed into the post, a cord fastened to the loop, which extends from the knee, and running over the pulley in an oblique direction; the cord must pass on the inside of the great toe; a weight hung to this of five or ten pounds, and increased if needed; or, simply tie the cord to the post. Here the extension, if wanted, is direct from the thigh, and a great deal more force can be employed than from the leg, but, in general, it is not wanted. If the patient is very restless, I employ splints of wood or reed, one-half to three-quarters of an inch wide, and the proper length, glued to strong cloth, properly and accurately fitted and buckled or pinned; that is all. One anterior and two side splints of felt or leather would answer. I dispense with the perineal band altogether. This is, in my experience and opinion, the best mode of treating fracture of the femur. Next to this, I should prefer Hodgen's or Smith's wire splint, which I often employ, or any other double-inclined apparatus in preference to the long splint. Even for fracture of the neck of the femur, this mode will answer better.

I do not claim anything original in regard to this treatment, nor perfection. All I claim is, that the double-inclined apparatus is the more natural one, and that I use the extension if any is needed from the thigh direct, keeping the femur in as natural a position as possible.

I may, in conclusion, mention that the reason why Profs. John T. Hodgen and N. R. Smith attain such good results with their suspension splints, is simply due to the more natural position they keep the limb in, and the patient does not get tired out so easily.

No. 3613 NORTH NINTH ST.

ARTICLE VI.

A CASE OF EMPYEMA. By W. GLEITSMANN, M. D.,* of Asheville, North Carolina.

The following case of Empyema, which was shortly alluded to in the biennial report of my Sanitarium, although not presenting new features as to symptom or treatment, presented in its course some peculiarities which may be found worthy of publication.

The patient, a male, thirty years old, was born and always lived in New England. His father, now seventy-two years of age, is said to have been suffering from some kind of lung disease for thirty years; and two brothers, twenty and twenty-two years old, died from consumption. He was a teacher by profession, and had always been in robust health till 1870, when he acquired a slight cough; lost and regained his voice twice, and, finally, observed his strength failing. He went to Aiken, S. C., February, 1876; suffered from fever there, and arrived in Asheville, April 22d, with fever as high as 40° C. which postponed his transfer from the hotel to my house to April 28th. The result of examination was as follows:

Tall, emaciated figure, stooping position; walks without fatigue on level ground for half or three-quarters of a mile, but finds it very difficult to go uphill or a staircase; cough and expectoration slight; appetite and digestion fair.

Height, 6 feet 1 inch; weight, 150 lbs. (usual weight, 165 to 170 lbs.; the greatest weight, 180 lbs.); circumference of chest, 84½ cm; expansion, 4 cm; lung capacity, 3,000 cubic cm (4,150 normal figure), temperature, 38.5° C.; pulse 90; respiration, 24 in the minute; chest, flat (not arched); expansion of left side considerably diminished; right front and back percussion and auscultation normal; left front and back, dullness over the whole side, especially marked back and below; respiratory murmur left front above, broncial; back very slightly audible; left back below, no respiration can be heard at all; pictoral fremitus considerably diminished, none at all from scapula down.

DIAGNOSIS.—Effusion in the left pleural cavity, probably with partial compression of the lung. The condition of the lung

* Proprietor and Physician in Charge of the Mountain Sanitarium for Pulmonary Diseases.

could not be decided positively, as, considering his family history, the physical symptoms could be explained from an infiltration of the upper lobe as well as from compression of the lung, in consequence of the pleuritic exudation.

With tonic treatment and local applications, the strength and weight of the patient increased rapidly. After two weeks he had gained nine pounds, was able to walk three to four miles and to make excursions with other patients. A change of the physical symptoms was not noticeable. Without apparent cause, at the end of May, diarrhœa, accompanied with fever, commenced, which was soon followed by occasional chills. The temperature, which was taken twice every day (often three or four times), showed very decided morning remissions with high exacerbations in the evening. The temperature in the morning moved generally between the figures 37° and 37.8° C.; began to rise early in the afternoon, and reached 38.5° to 39° C., at 8 or 9 o'clock, P. M. The diarrhœa disappeared and reappeared again. Some days the patient remained in bed, on others he came down stairs and took a short walk or ride in a buggy. His weight was, in the beginning of July, one pound less than when he came to the Sanitarium. Except the almost daily fever and a troublesome cough, with thin, purulent expectoration, he complained only of excessive languor and feebleness. His appetite was capricious, and early that month the sensation of weight and heaviness in the left chest, which he noticed for some time past, increased to an uncomfortable extent. The treatment was tonic and mainly directed against the fever. The best effect was obtained from salicylic acid in doses of two scruples to one dram, which never failed to reduce his temperature from 1° to 1.5° C. Quinine, even, in full doses, had no effect. In the middle of July he began to suffer from shortness of breath, and it was found that dullness extended over the whole left side, and the heart was seen beating on the right side of the sternum. It was concluded to remove the fluid in the pleura by operation, and a Dieulafoys aspirator ordered. As, at this time, the palpitations of the heart increased, and the condition of the patient grew dangerous, the first operation was performed on the 25th of July. The aspirator not having arrived yet, a large syringe was connected by means of a short India rubber pipe with a long perforated needle, originally intended for laryngological purposes.

Dr. Hardy, who kindly assisted me in this and all future operations, helped me to remove 75 ounces of this pus, which was without odor. The relief from the operation was not as great as expected. Therefore, three days later, 60 ounces of pus, of the same character, were withdrawn with needle No. 2 of the aspirator, which had meanwhile arrived. Both punctures were made in the fifth intercostal space in the mammillar line. The temperature was somewhat reduced after the second operation. His weight on the 30th of July was 129½ pounds. There was very feeble respiratory murmur in the left side front from the top to the second intercostal space; none at the back. Front above, the percussion sound, light tympanitic, most decidedly so in the fifth and sixth intercostal spaces, with no pectoral fremitus at all; dullness all over the back; the heart was beating under the sternum. The temperature still remaining high (39° C. in the evening) and the condition of the patient unchanged, 36 ounces pus of a little thicker character were removed August 5th by a puncture in the eighth intercostal spaces in the axillar line. After the operation the tympanitis in the sixth intercostal space (which Wintrich and Traube in Siemssen's Encyclopedia explain by relaxation of the lung tissue), disappeared. The heart now beat on the left side of the sternum. The patient felt relieved, and was, after a few days, able to leave his bed His temperature was kept down by full doses of salicylic acid (60 to 80 gr.) The examination on August 13th, showed normal condition of the right side. Left front above, dullness and light tympanitis; absolute dullness from third intercostal space downwards, and outside of an almost straight line drawn perpendicularly to the ribs half an inch outside of the mammillar line. Inside of this line high tympanitic sound, extending without interruption to the intestines. Change of position, for instance, lying on the abdomen, does not alter these conditions; tympanitis remains inside, dullness outside of this line. On the top, respiratory murmur very feeble; the heart was heard to beat under the processus ensiformis.

As the condition of the patient again grew worse, the fourth operation was performed August 16th in the sixth intercostal space between the mammillar and axillar line, and 27 ounces of thick pus removed. With perfect exclusion of air, 12 ounces of water of 100° F., and subsequently, 1 dram compound solution of iodine and half a dram carbolic acid dissolved in 12

ounces of water, were introduced with the force pump of the aspirator. The whole quantity, mixed with pus, was then withdrawn. Two days later the above mentioned tympanitis had disappeared, and the heart was beating again to the left of the sternum. August 22nd, the fifth puncture was made in the sixth intercostal space behind the axillar line, and 70 ounces decomposed pus of bad odor removed. As in these five operations 268 ounces of pus had been taken from the pleural cavity without any lasting benefit to the patient, it was found necessary to wash out the cavity in order to prevent the reformation of pus.

August 25th a small trocar was introduced in the sixth intercostal space, between the mammillar and axillar line. After withdrawal of the needle connection with the aspirator was established, and 25 ounces of fœtid pus removed. By means of a fountain syringe, 30 ounces of water with half a dram of carbolic acid were let in and drawn out with the aspirator. A permanent opening being made, it was attempted to keep the pleural cavity perfectly clean from pus by frequent irrigations. If this intention could be accomplished, we felt assured that the patient would get rid of the fever, and the pleural abscess have a chance to heal. Therefore, from six to as many as fifteen cleansings were made daily, morning and evening. Pure water, solutions of salt, tincture of iodine, carbolic acid, hypermanganate of potash were used with the irrigator. In the beginning the pleura took up from 18 to 20 ounces. Six days after the introduction of the trocar, the canula changed its position a little backward and some thick pus was observed to come out of the abscess, when the last irrigation had been withdrawn. New cleansings were at once commenced again, and it was found that we let 40 ounces, instead of 20 ounces, as before, run into the cavity. After the opening of this new diverticle, the temperature, which had not been much influenced by the cleansings, showed considerable decrease at the evening exacerbations, but without reaching the normal figure. The patient's weight was then reduced to 120 pounds. His condition, although nearly hopeless when the washing out of the pleura was commenced, became better, the lost appetite returned, and he left his bed and sat in a chair the first time on September 11th. But, as the water or solutions never ran out clear without being mixed with pus, notwithstanding the numerous cleansings, and as the evening temperature was always higher than normal, another method for cleaning the

cavity was adopted. The canula of the trocar was discarded entirely, and two elastic male catheters were introduced twice a day. One of them was connected with the bag of the fountain syringe, the other with the aspirator. In this way the washing out was very much simplified and could, without loss of time, or discomfort to the patient, be continued until the contents ran out perfectly clear. In order to prevent the ribs from coming too close together, a seton of linen, newly made every time, was introduced into the wound and secured with adhesive plaster.

This seton, corresponding in circumference with the outside orifice, was provided with a shield of linen to protect the wound. Its length was at first 8 inches, although the catheters were introduced still deeper in order to reach the bottom of the abscess. This means of keeping the wound open, overcame, in the most perfect manner, the difficulty mentioned by authors, and proved to be more satisfactory than the hard, unyielding silver canula described in Siemssen's Encyclopedia. The temperature became normal very soon after the use of the catheters; the appetite increased rapidly, and the patient was soon able to come down stairs, and to take a ride.

Under this mode of treatment, which was adhered to all the time up to the departure of the patient, the abscess began to decrease slowly but steadily in size, and accordingly the seton was made shorter. The patient's weight was, November 15th, 155 pounds; December 31st, 149; January 14th, 1877, 155 pounds. In the spring of this year the patient regained his full strength, was able to walk four or five hours a day without fatigue, and looked strong and hearty. When he went away, June 6th, his left lung, which at one time was completely collapsed, had begun to inflate again. The circumference of the left chest was five centimeters less than that of the right. The cavity had decreased in capacity from the 40 ounces it first held, to only 4 ounces. In his last letter of October 31st, this year, he states as a result of Dr. Bowditch's examination in Boston, that there was no disease in the left lung; that air entered in every part of it; still, the expansion was defective. Weight, 170 pounds, strong, appetite excellent, walks from seven to ten miles a day, all weathers, save when it rains.

If we recapitulate shortly, the most important points of this case, we see: 1st. Aspiration with perfect exclusion of air, performed with the most simple and easily-constructed instruments.

2nd. The great quantity of pus (268 ozs.), removed in five aspirations within a little less that one month.

3rd. The change of good, healthy pus into one decidedly fœtid in character after injection of iodine into the plural cavity, although the instruments used were absolutely air tight.

4th. The recovery of the patient from an almost hopeless condition, the favorable change beginning as soon as the cavity was washed out regularly through the trocar.

5th. The complete recovery and normal temperature commencing only after the use of the catheters, which made it possible to keep the pleural cavity perfectly clean. The history of the case shows that the temperature did not decrease to the normal figure, until the empyema was treated as an open abscess, and the cavity was kept clean, like an external abscess.

6th. The manner of keeping open the wound with a seton of linen fastened to a shield, which protected the wound by a very simple method.

The perfect willingness of the patient to consent to all the means necessary for his treatment, his great endurance and will-power were a most valuable assistance in treating this certainly difficult case.

ARTICLE VII.

KIDNEYS ILLUSTRATING THE SUBJECT OF BRIGHT'S DISEASE. By T. F. PREWITT, M. D.,* of St. Louis.

Through the kindness of my friends, Drs. Brokaw and G. A. Moses, I am enabled to exhibit to the Society some kidneys, further illustrating the subject of Bright's disease, which, with the specimens of granular contracted kidneys presented by me at a former meeting of the Society, in connection with a paper on "Chronic Bright's disease, associated with disease of the heart," and which I show you again to-night, exhibit in strong contrast, the pathological conditions in acute nephritis and the granular contracted kidney. One of the specimens is from a child, aged

* Read before the St. Louis Medical Society.

four years, who was taken with diphtheria about the 7th or 8th of October, the diphtheritic membrane covering the tonsils and soft palate and extending into the nose, with profuse discharge from the anterior nares. Dr. Brokaw saw the case on the 11th and on the 13th found abundance of albumen. In a specimen of urine, which he furnished me about the 15th, I found a large amount of albumen, epithelial and hyaline casts, and an abundance of uric acid srystals of an unusual form, barrel shaped mostly, with a few cubes. I have placed the crystals under the microscope that the members may have an opportunity of examining them. They are beuutiful specimens.

The diphtheritic membrane disappeared a few days before death and the child showed some disposition to take nourishment, but the amount of urine progressively diminished and during the four days preceding the fatal result, the whole amount voided did not exceed half an ounce.

The pulse became more and more feeble and intermittent, and ceased to be felt at the wrist for some time before death, which took place October 21st. There was no anasarca, no convulsions, no coma—the mind remaining clear almost to the time when the heart, unable to contract upon its contents, ceased to beat in diastole.

At the post mortem, made by me at Dr. Brokaw's request some hours after death, the abdominal and pleural cavities were found remarkably free from fluid. The lungs were normal. The pericardium contained not more than the normal amount of serum. Both auricles and ventricles were filled with dark coagulated blood, and in addition the right ventricle contained a firmer fibrinous clot. The kidneys were somewhat enlarged and congested—the cortical portion increased in thickness.

The next specimen—the very large kidney, is from a gentleman aged about 33, who had been in bad health for some years, had suffered more or less from rheumatism, had spent a year past at the Hot Springs, Ark.. had been troubled a good deal with diarrhœa, and stated that he had had aching in the the lumbar region, and had had slight dropsical effusions for some time, limited mostly to the lower limbs. Urine had been abundant until recently, when it was more scant. The history is a very imperfect one, as he only came under Dr. Moses' observation a few days before death. while suffering from an injury, which ren-

dered him incapable of giving a clear account of his case. On October 16th he was thrown from a buggy, falling upon a pile of stones and sustaining an injury in the occipital region behind the right ear.

He suffered severely from concussion but was able after a short time to ride in a carriage to the Sister's Hospital, where he was seen daily by Dr. Moses until his death. He became somewhat stupid, but had no paralysis and no convulsions; could answer questions rationally up to the time when last seen by Dr. Moses, about six hours before his death, after which time he became more comatose and died rather suddenly about 6 P. M. October 21st.

A specimen of urine obtained at his last visit, Dr. Moses found to contain an abundance of albumen, a large number of blood corpuscles, epithelial, granular, fatty and hyaline casts.

At the autopsy a large extravasation of blood was found beneath the dura mater, and extending from the base to the vertex over the left hemisphere—the side opposite the seat of injury. There was no effusion in the serous cavities, but extensive pleuritic adhesions in the left chest, to the walls, and pericardium. The left lung showed some pneumonic congestion. The upper surface of the liver was adherent to the diaphragm and the liver itself was lighter in color and mottled. The microscope showed it to be due to the connective tissue hypertrophy—not fatty degenerations as its appearance first suggested.

The kidneys were large and congested, dripping with blood on section; the cortical portion was greatly increased in thickness and in some portions becoming paler from engorgement of the tubules with epithelium. The capsule peeled off readily.

The history of this case is too indefinite to enable us to say how long he had suffered with Bright's disease, but the condition of the kidneys and the few facts known, clearly indicate, I think, the first or acute stage of the malady.

Article VIII.

Diphtheroid, or Modified Diphtheria. By E. Frank Wells, M. D., of Minster, O.

I propose the name "*diphtheroid*" for a modification of diphtheria, which differs so essentialy in some of its features from that disease as to merit separate attention. I am not aware that the attention of the profession has ever been specially directed to this point; authors usually contenting themselves with the vague statement that "during the prevalence of an epidemic of diphtheria, cases of sore throat are of frequent occurrence." I shall endeavor, in this paper, to show that these cases of "sore throat" occurring during the prevalence of an epidemic of diphtheria, depend for their existence upon the epidemic influence; *are, in fact, cases of diphtheria*, essentially modified, and bearing the same relation to diphtheria that varioloid does to variola.

In describing the disease in question, and drawing the line of distinction between it and diphtheria in its common form, I shall follow the usual plan of calling special attention to its features under the separate heads of symptoms, morbid anatomy, pathology, causation, diagnosis, prognosis, and treatment.

Symptoms.—The patient is generally taken with a chill, more or less well marked, followed by fever; or he complains of irregular chilly sensations, especially upon exertion, followed by flashes of heat. The attack usually comes on in the afternoon or evening, and the fever continues with but slight abatement until the next morning; at which time either an intermission or a remission occurs. In the evening a second febrile paroxysm is experienced, but of less intensity, and of shorter duration. With the subsidence of the second paroxysm the fever generally disappears. Paroxysms may recur the third or fourth time, but this is comparatively rare. During the first night the patient is sleepless, or if he does obtain some sleep, his rest is disturbed by frightful dreams. Mild delirium may also occur. These symptoms are experienced in a milder form during the first part of the second night. Headache is a prominent symptom during

the continuance of the febrile stage, and a severe stabbing pain in one or both ears, may be noticed in some cases.

In general it is not until the subsidence of the first febrile paroxysm that the patient complains of any symptoms relating to the throat. He now remarks a dryness of the fauces and an uneasy sensation attending the act of deglutition. The patient says that his "throat feels stiff." Inspection will reveal the parts to be intensely congested. The tonsils and other glands of the neighborhood will be found enlarged. The uvula is elongated and sometimes touches the tongue, thus giving rise to continuous and futile efforts at swallowing. It may converge to either side, and may be glued to the tonsil by the viscid mucus secretion. In a short time the inflamed mucous membrane begins to secrete a very viscid mucus, which, unlike the secretion of diphtheria in its usual form, has no tendency to form false membrane. From its extremely viscid character, and because the mucous membrane is peculiarly insensible to its presence, it is not removed before putrefaction sets in, thus causing a fœtid odor to emanate from the diseased parts. This morbid action of the mucous membrane reaches its acme on the second and third days, after which it rapidly declines, so that in two or three days later, nothing abnormal is to be seen save a slight redness of the mucous surfaces and more or less engorgement of the tonsils.

Respiration and phonation are not interfered with unless the parts below the glottis are involved, in which case the diagnosis will be made out with difficulty.

The duration of the disease is from three to six days, and convalescence may be complicated with any of the sequelæ of diphtheria. Relapses are not rare and may occur either as diphtheroid or as diphtheria.

In this connection, it may be well to give condensed histories of four cases of this form of disease, selected from a large number that have fallen under my care during the prevalence of the present epidemic, which began in July, 1877, and continues with slightly diminished fury at the present time. Through fortuitous circumstances I have seen a very large number of cases—near two hundred—and of this number fully one-fourth presented the disease in its modified form. I have no doubt that if attention be directed toward the subject, that this would be the experience of epidemics of diphtheria generally.

CASE I.—J. W., aged four, was taken September 7th, in the

afternoon, with a well-marked chill, followed by febrile reaction, which continued during the night. She passed a very restless night, sleeping but little, and that little disturbed by dreams. I saw the patient next morning and instituted a most searching examination of the visible air-passages, expecting to find the false membrane of diphtheria, as other members of the family were then suffering with that malady. I found the parts intensely congested, the tonsils swollen and a moderate secretion of viscid mucus. In the afternoon I saw the patient again. At this time fœtor was well marked. In the evening she had a recurrence of the fever, but the paroxysm was milder and of shorter duration, leaving the patient at midnight to obtain a quiet sleep. Next day there was but slight change in the appearance of the throat symptoms, but she had no more fever and her appetite was better. On the fourth day the mucus secreted was thinner, was easily removed by the patient and consequently the fœtor had disappeared. No sequelæ.

Case II.—Miss S. H., aged 18, October 10th, was taken with a chill in the afternoon followed by fever, which continued during the night. Her sleep was disturbed by dreams. When I saw her the following morning, the fever had returned. The fauces were congested and the posterior nares were also involved. The tonsils and lymphatic glands of the neck were enlarged. There was great fœtor, and the parts were very insensitive to the touch. Severe stabbing pain in the left ear was complained of. Recovery in four days. Five other members of this family had previously suffered attacks of true diphtheria and for three weeks she had acted as their nurse.

Case III.—J. B., aged 12, was taken, Oct. 17th, with a chill, followed by a high fever, which continued through the night. I saw him the next day, and found the tonsils largely swollen. The pharyngeal mucous membrane was intensely congested and secreting a viscid mucus which, as usual at this stage, exhaled a very fœtid odor. The fever returned in the evening, but next day he was better, and in four days from the time he was attacked, nothing but an enlarged tonsil was left to show that any morbid agency had been at work in the vicinity. From Nov. 1st, to the 3rd inclusive, he suffered a relapse in which the former symptoms were duplicated, and in addition, a partial

paralysis of the veil of the palate occurred as a sequel, and still continues.

The mother and all his brothers and sisters had the disease (diphtheria), in its worst form, and one, a boy of four, died from its effects.

CASE IV.—Mrs. B., aged 81. This aged lady is a member of a family of seven, one of whom had had diphtheria with the formation of false membrane; all the other members suffered with modified diphtheria. Mrs. B. was taken Oct. 1st with chilly sensations and flushes of heat, beginning at noon and continuing until the next morning; the tonsil became swollen, and she complained of stiffness of the throat and pain, upon deglutition of such intensity as to cause her to abstain from taking food. Inspection in the evening showed the mucous membrane of the parts reddened and emitting a fœtid odor. No false membrane was to be seen, but on the tonsils was a thin layer of viscid mucus. During the following night she again had fever, and, as on the previous night, obtained but little rest. In four days she had completely recovered, save from weakness.

The four cases recited are fair examples of different phases of modified diphtheria, and have been selected from a list of more than fifty recorded cases that have come under my observation during the present epidemic. The cases presented all the symptoms and signs of common diphtheria, save the appearance of the false membrane, which, although carefully and often looked for in each case, was not to be seen, and no signs or symptoms pointed to its presence in inaccessible situations.

MORBID ANATOMY.—The feature of this disease which is most prominent is the occurrence of a fever of greater or less intensity, accompanied by an inflammation of the mucous membrane and altered derma of various parts of the body, but having a decided preference for the pharynx and neighboring parts; attended by the exudation of a very viscid mucus, which adheres pertinaciously, and quickly undergoes putrefactive changes. The lymphatic glands in the neighborhood generally become enlarged. In the vast majority of instances the throat will be involved, and in such cases, one or both tonsils are found swollen. The nares and Eustachian tube may be affected.

PATHOLOGICAL CHARACTER AND CAUSATION.—Diphtheroid is simply modified diphtheria, differing from the latter only in its local

manifestations. Upon this, alone, depends its claim to a separate description and a distinctive name. Diphtheroid and diphtheria are constitutional diseases with a local manifestation. They are, in their essential nature, identical, and differ only in degree. They are caused by some unknown morbific material, acting generally as an epidemic, which enters the economy in a mysterious manner and acts upon the circulation in some occult way. When once a community is subjected to the epidemic influences, contagion certainly plays an important role in the causation of individual cases.

Diagnosis.—The differential diagnosis will embrace the discrimination of diphtheroid from diphtheria and other forms of sore throat. The distinguishing ot diphtheroid from diphtheria is a matter of practical importance on account of their different relative danger. This is to be decided by the non-appearance of the false membrane in diphtheroid and its invariable presence in diphtheria. Previous to the time for the appearance of the diphtheritic exudation these forms of disease cannot, with certainty, be distinguished, the one from the other. From other forms of sore throat it is to be distinguished by the presence of an epidemic influence and the peculiar nature of the general symptoms.

Prognosis.—Diphtheroid does not endanger life. The duration is from three to six days only, and convalescence is usually uneventful. Occasionally the debility is out of all proportion to the severity of the attack, and in rare cases various paralyses may occur as sequelæ.

Treatment.—It will be found well, in most instances, to begin the treatment by the exhibition of a mild cathartic, and follow with the chlorate of potassa in full doses. This remedy seems to have a very beneficial effect upon the local manifestation in the throat. A gargle or injection of a strong solution of alum wil be found useful in removing the mucus and with it the fœtor.

In judging of the success of any remedy in this affection, it is to be borne in mind that diphtheroid is an essential disease of definite duration and tending to recovery. In the present state of our science we are not in possession of any remedy acting in a specific manner against the diphtheritic poison and known to cut short the attack.

ARTICLE IX.

CORNEAL ULCERS. By I. R. L. HARDESTY, M. D., of Wheeling, West Virginia.

In giving expression to a few thoughts and observations on the pathology and treatment of ulcerations of the cornea, it is not my intention to go into detail or to particularize, to any great extent, the varieties of this most important and painful disease. The characteristics of all ulcers of the cornea are similar, as regards treatment, except so far, it may be, as the sthenic or asthenic condition of the patient may modify it. Ulceration of this most composite membrane—having no blood vessels distributed to its substance, renders the process of repair slow and uncertain, often lasting weeks and months. A large number of cases of ulceration are from traumatic causes, from foreign bodies driven into the substance of the tissue. One source that has come under my immediate observation, is that of hot cinders thrown off from railroad locomotives, striking the cornea. Chemical irritants are also causes, and among these are strong eye lotions. Eutropium and trichiasis or turnings in of the cilia against the cornea, are also causes; all these may be denominated traumatic causes.

Phlyctænæ are by no means confined to the conjunctiva scleroticæ, but are often much within the corneal tissue; and when we consider the peculiar anatomy of this structure, we are led to believe the inflammation producing them, is an extension between the epithelial and the lamina anterior. In this form they may be observed containing a serous fluid. In their primitive state, where we have phlyctenular formations, the walls of the vesicles burst, or give way, when the primitive ulcer is established with sharp edges covered with purulent or muco-purulent matter. I have observed another form where there is little or no inflammation; a small nodule is observed, the surface of which is, after a little time, denuded of its epithelium, and an ulcer is developed. When the ulcer is centrally located, the intervening space between it and the sclerotica is clear. This space is sometimes apt to take on an inflammatory condition, forming a limited superficial keratitis; or inflammation of the

cornea may not occur; the ulcer is then situated in clear corneal tissue, and has the appearance as if a small piece had been excised. This is the simplest of all corneal ulcers, and is usually confined to the conjunctival covering.

Should resolution not speedily occur, and the anterior elastic lamina become involved, undergoing inflammation and ulceration, opening up the true corneal lamina, we have one of two phenomena: the ulcer either extends its base, and sloughings of the substance of the cornea occurs, or penetrating into its deep structure, threathens perforation of the anterior chamber.

Ulcers of this character are surrounded by more or less opacity, which is due to the inflammation of the parts near the ulceration, or an attempt of nature to limit or circumscribe the disease by a deposit of plastic lymph. Ulcers presenting irregular or serrated edges are usually more liable to extend, and at the same time continue to penetrate into the deep substance of the tissue until the posterior elastic lamina is reached, when we have either ulcerative corneal staphyloma, or perforation with a discharge of the aqueous fluid, when a prolapse of the iris follows. In all cases of corneal ulceration, more or less febrile excitement is present; and where there is persistence in the course of the disease, the patient is usually prostrated by pain and loss of sleep. In treating these cases I have observed that the patient is comparatively free from pain during the day, but is sure to have great pain about the brow and in the eyeballs at some period during the night, which is only relieved by the use of opium in some form. Great intolerance of light with blepharospasm is usually present, and it is often with great difficulty that we can obtain a good view of the condition of the eye. In the treatment of corneal ulcers, I am often reminded of a stereotyped expression of the late Prof. Thomas D. Müller, formerly Professor of Surgery in the Jefferson Medical College, of Philadelphia: "Gentlemen of the graduating class, be careful what you do." It is of the utmost importance that the greatest care should be observed. The great danger lies in attempting too much.

I have seen strong lotions of nitrate of silver applied, also the solid stick rubbed into a primary ulcer. There are special reasons why lotions composed of argt. nitras, sul. zinc, acetate of lead, and all salts that are rendered insoluble when they come in contact with conjunctival mucus, or the tears, should not be used; as, when nit. of silver coming in contact with the tears,

an insoluble chloride of silver is precipitated upon the ulcerated surfaces and remaining, is covered with cicatricial issue, thereby producing an indellible leucoma. So we may have like results from the use of all salts which decompose and form an insoluble precipitate when in contact with tears.

The first indication is to limit the ulceration and to relieve the pain. By reducing the vascularity we diminish the secretion of the aqueous fluid and thereby relieve the intra-ocular pressure. I universally use a strong solution of neutral sulphate of atropia, three or four grains to the ounce of distilled water, and where a slight stimulation is necessary, I add two or three grains of sulphate of alumina, which is not insoluble in chloride of sodium. I order this lotion to be dropped into the eye every three or four hours, and in the interum, apply a piece of court plaster to keep the lids at rest. All pressure on the eyeball should be avoided, and no bandages applied. Febrile excitement should be met by the usual means. In the most obstinate cases I have found the warm bath, taken daily, most efficacious; and where there is a strumous diathesis, I order the following:

R. Ferri Sulphas.....Gr. CXXVIII.
Potassium Iod.....Gr. LXXXXVI.
Syrup.....℥ IV.

Dissolve the Ferri Sulphate and Potassium in separate parts of the Syrup, and mix.

Sig. One teaspoonful three times a day, to an adult.

Where there is persistent sloughings or a tendency to perforate the deep cornea lamina, I at once make Paracentesis corneæ and draw off a portion of aqueous fluid. I use a broad needle or a Beers cuneiform cataract knife and allow a few drops of the aqueous fluid to discharge, and, if necessary, in 24 or 36 hours I repeat the operation, always making my incision in a sound part of the cornea, and immediately close the eyelids with plaster. This operation removes the intra-ocular pressure, and promotes a more healthy circulation in the corneal tissue. I have had more satisfactory results from drawing off the aqueous fluid than from stimulating applications to the ulcerated surfaces.

The great danger in ulceration of the cornea, is perforation, followed by either prolapsus of the iris, or adhesion of the iris to the cornea, or to the capsule of the lens, or both. Prolapsus is usually more imminent in marginal ulceration than in

central. Central prolapse usually interferes more with vision than marginal, for the reason that in central prolapse the iris is usually adherent at the pupillary margin, and the opaque cornea surrounding it interferes with whatever space is left; in the marginal the pupil is free, although eccentric; the opacity does not interfere with it.

ARTICLE X.

MEDICAL EXPERTS AS WITNESSES IN COURTS OF JUSTICE. By F. T. LEDERGERBER, ESQ., of St. Louis.

Complaint is frequently made by scientific and medical experts, of the rigid rule which requires them to attend Court the same as other witnesses, for the purpose of giving their opinions in evidence. Medical men in particular complain that it compels them to neglect professional duties to the detriment of their patients and practice. In order to ascertain whether this complaint is well founded or not, the duties of the citizen toward the Courts as a witness should be considered, as well as the relation a witness bears toward the same tribunal.

The free and unincumbered use of all the powers of a court, are essential to the equal and uniform discharge of its functions. Among the most important of these is the power to produce witnesses at the trial of an issue, and to punish them in case of a failure to attend. It would be mere mockery for the State to permit a defendant in a criminal case to subpœna his witnesses, and then refuse to compel them to attend at the trial.[1]

The same rule applies to civil cases; for unless the Court can compel the attendance of witnesses and punish them for neglecting to appear at the proper time, witnesses would, in many instances, compel the litigant to come to the witness' terms for his testimony.[2] To the poor litigant, this would in effect be a denial of justice as against the rich. In Connecticut the Courts have held that an agreement to pay a witness more than the fees

1. Wis. p 209.
2. 26 Com. 463.

prescribed by law for his attendance at Court, will not ordinarily be sustained. The Court in delivering the opinion, says: "What is true of a witness, is true of every officer of the government, whose duties and compensation are fixed by statute. Their compensation is specific, for certain official services, and in no way, covertly or openly, can more be recovered by process of law. If it were not so, witnesses would make terms for their testimony.[1] When a party forbears to go on a journey, or agrees to attend without being notified by the proper officer, these are cases in which a promise to pay more than the ordinary fees can be sustained. There is no reason why a scientific or medical expert, who must undertake extra labor or research in order to give his opinion in a certain case, cannot claim extra pay for the same, if he can show that he did this at the special request of the litigant who calls him, and this labor was absolutely necessary.[2]

From the foregoing it is plain that as soon as a party is duly notified to appear in Court to give his testimony, he is *quaisi* an officer of the Court, and can be compelled to attend,[3] or be fined for non-attendance;[4] and has no right to charge extra pay for doing his duty except in peculiar cases. In the State of Missouri,[5] and, in fact, all other States, a witness, when duly served with a subpœna, and whose lawful fees and mileage were paid him at the time of serving process upon him by the officer, is liable for any damage the party by whom he has been so-called may sustain by reason of his absence at the trial. And it has been held that in case the time for which he has been so paid has expired, he cannot leave Court without notifying the party calling him. A witness duly subpœned must make more than ordinary efforts to attend, nothing but extreme poverty or physical incapacity of himself will excuse him. Sickness in his family, even extreme illness of his wife, so that his attention to her is absolutely necessary to her comfort and safety, has been held as no excuse.[6] In the latter case, a witness who failed to attend and was brought in by attachment was fined equal to the amount of

1. 26 Com. 463.
2. 3rd Ind. Rec. 497.
3. Wagner's Statutes of Mo. Sec. 13 p. 1375.
4. Ib. Sep. 16 p. 1375. May be fined to not exceed Fifty Dollars.
5. Ib. Sec. 17, p. 1375, 16 Mo. 442.
6. 1 Head (Tenn.) Rep. 341, 4 Yerger (Miss.) Rep. 478, 15 Wend. (N. Y. Rep. 602.

costs assessed against the party calling him on account of his absence. On the other hand, witnesses who attend are entitled to their pay, whether they are sworn or not, from the party calling them,[1] and in most States from the losing party. In New Jersey, in 1819, a witness could not be compelled to attend unless his fees and milage were paid or tendered to him.[2] This rule has been radically changed, and a person served by an officer must attend.

The next question is a more delicate one, namely: What witnesses will a Court bring in by force under all circumstances, and what exceptions are ever made. It is always in the discretion of the Court, whether he will issue an attachment to compel the attendance of a witness.[3] An attachment against a witness to the facts in a case will issue an application in every instance where the witness is duly served with process, and is not present in Court when called, unless cause is shown against the issuing of the writ. A different rule seems to prevail concerning experts in some Courts and should in all.[4] In such cases the Court holds: That he had frequenty refused to order the arrest, by attachment against experts; that to compel a person to attend merely because he was accomplished in a particular science, art or profession, would subject the same individual to be called upon in every cause in which any question in his department of knowledge is to be solved. Thus the most eminent physician might be compelled merely for ordinary witness fees, to attend from the remotest part of the district and give his opinion in every trial in which a medical question would arise. This is unreasonable and nothing but nece sity can justify it.

The Court frequently inquires, before issuing an attachment against a scientist or expert, and most generally in case of a physician, into the necessity of having such a witness attend, and also as to whether the witness is expected to prove facts in the case at bar, or give his opinion upon facts proved. If this rule were generally followed, there would be very little cause, if any, for complaint. Parties would then seek only those scientists or medical men as experts to testify in their cases, who possessed a special experience or reputation in their profession upon the

1. Ills. Rep. 15.
2. 5 N. J. L. Rep. 518.
3. 1 Wis. Rep. 209-235.
4. 1 Sprague Rep. 276.

matter in issue, and pay them for the extra time necessarily spent in investigating the subject. This would tend to help the attorneys and such witnesses out of a dilemma, very frequently unpleasant and annoying to both. In England such witnesses receive extra remuneration. The same is the case in all countries in which the civil law is in force.

Upon this subject and the value of the opinions of scientists and experts more may be said hereafter.

ARTICLE XI.

AMPUTATION OF THE RECTUM. By W. HUTSON FORD, M. D.,* of St. Louis.

It might interest the Society to hear the details of a very difficult and protracted case with which I have had to deal during the past summer at St. Vincent's Asylum for the insane. About the middle of July, last, Dr. J. K. Bauduy, physician to the asylum, requested me to take charge of one of his patients, an inmate, and to do what I could for him in the way of operation. The patient had an enormous prolapse of the rectum of two years standing.

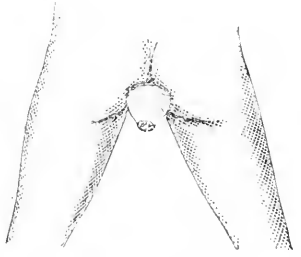
It is curious how often prolapsus ani, or properly, prolapsus recti, occurs in the insane. The protrusion of bowel is probably mainly due to the constipation which so often accompanies cerebral troubles, and to the violent and constant straining at stool which is necessarily attendant upon the intestinal torpor. There is generally, also loss of tone in the sphincter ani, as a consequence of the general anæmia. Under such circumstances a prolapse may attain a great size.

The patient had been affected with prolapse, as I have said, for at least two years; he had usually replaced it himself; occasionally, it was returned by a nurse; lately, it could not be retained after reduction, but descended again as soon the erect posture was assumed, or even when he was recumbent. The

* Extracted from the proceedings of the St. Louis Medical Society.

everted mucous membrane had ulcerated extensively, and bled copiously from time to time, so that he had become profoundly anæmic. The protrusion presented itself as a large conoidal tumor, around whose base the enormously stretched sphincter and marginal skin was thrown into deep circular folds. It measured from four to four and a half inches, by careful measurement, in length, and two inches and three-quarters in diameter through its base. It thus occupied all the space attainable between the point of the coccyx and the tuberosities of the ischia. The internal sphincter was everted and lay outside the tumor. The exposed mucous surface secreted a glairy fluid which distilled from it in viscid drops, the entire surface being protected from the air, at least to some extent, by this secretion of mucus, except where the mucous membrane was ulcerated. The secretions, often bloody, from the excoriated and ulcerated surface, continually soiled his clothing. The pain produced by pressure upon the tumor, prevented his sitting down, for more than a few minutes at a time, while the friction both of the adjacent parts and of his clothing rendered walking equally distressing. The following cut shows the shape and general appearance of the prolapse at this time.

Fig. 1.



Appearance of the prolapse before operation.

I was of opinion that some operative procedure was indicated, but he was suffering from diarrhœa, and extremely worn and feeble. I put him on the Asylum diarrhœa mixture and afterwards on quinine and iron. After the arrest of the diarrhœa, and some general improvement, I proceeded to operate, with the assistance of Drs. Banduy and P. G. Robinson.

The patient, after having been bound up in lithotomy position, was etherized. I then took up four vertical folds of mucous

membrane diagonally situated with regard to the antero-posterior and transverse planes of the pelvic opening, so as to avoid proximity of the needle punctures and ligatures to the urethra prostate or base of the bladder, after the protrusion should be returned. In view of the great relaxation of the parts around, and the great size and weight of those now protruded and about to be returned, after ligating the folds taken up very strongly with flaxen twine, and pushing up the mass into the cavity of the pelvis, I excised from the margin of the flabby anal integument four large pieces of skin, removing with the skin no small amount of subjacent tissue. The direction of these excisions was of course radial to the anal orifice, and they were made to extend somewhat into the tissue of the anal edge itself. Two sutures were passed across each of these wounds, whose lips were closely approximated by tying them. A large pad supported by T bandages was applied, and opium and astringents afterwards employed generally and locally.

During the operation, although thoroughly etherized, the puncture and ligation of the mucous membrane seemed to excite most violent and scarcely intermitted tenesmic straining. Under these efforts, which were continued during the entire period of the operation, and which rendered it very tedious and excessively fatiguing to all concerned, the prolapse bulged out as large as a child's head. I could only retain it, so as to have a chance to excise the radial pieces of integument above referred to, by bearing against it with my closed fist with nearly my whole strength, for minutes at a time. When the lips of the marginal excisions were brought together by their sutures, some kind of reflex action seemed to be set up which promply caused a cessation of these expulsive efforts.

He did not strain again for a month after this operation while recumbent, and the prolapse did not descend; but as soon as he was allowed to leave the bed and go to the water-closet, he began to strain. The prolapse consequently descended anew, getting larger and larger; the deep adhesions failed to hold, and the young cicatricial tissue of the marginal excisions yielded steadily under the weight and wedge-like action of the decending bowel, so that the operation proved a total failure, and the prolapse was as large as ever six weeks after he had been operated upon. As the case had been under constant care and well nursed, the surface of the protrusion was every where sound, but the gen-

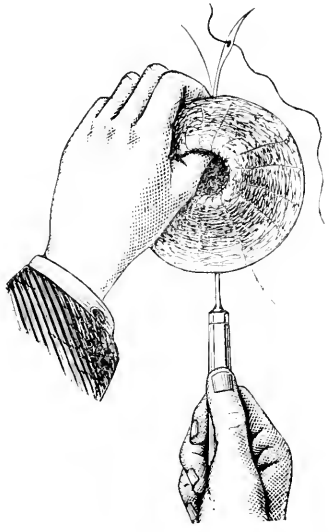
eral health was not quite as good as before, owing, probably, to the abundant suppuration, and numerous heavy hemorrhages from the neighborhood of the internal ligatures.

Ligation having failed, after a very fair trial, and other methods, such as cauterization by nitric acid, or the actual or galvanocautery, or excision of folds of mucous membrane with subsequent cauterization, giving no better promise, I determined to amputate the prolapsed bowel, so as to preserve his general health and allow him to sit down and move about with comfort, which he could not now do. I had, I thought, reason to hope that if the protruded portion was removed, no great amount of the intestine above would again descend.

Having determined to proceed in this way, I made choice of a method of circumferential ligation of my own invention, which I put in practice with the kind assistance of Dr. W. B. Hazard, who took charge of the etherization.

The patient having been again tied up as for lithotomy, the thumb of the right hand being introduced deeply into the cavity of the

Fig. 2.

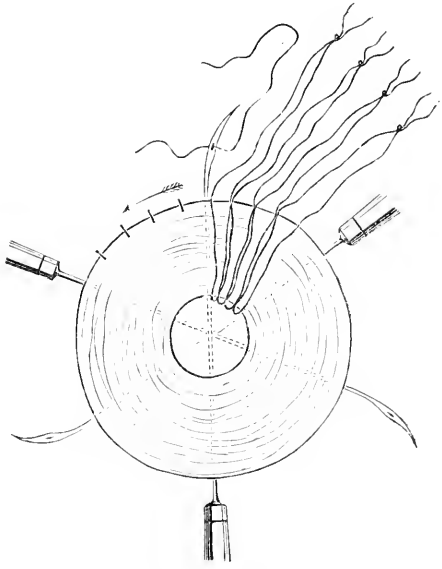


Insertion of the ligatures showing the three positions of the needle. The ligatures are temporarily tied in pairs.

gut, a long, slightly curved, blunt-edged nævus needle was made to transfix the entire base of the tumor close up to the sphincter

(now everted). A ligature having been passed through the eye of the needle it was withdrawn only so far as to allow of its point being moved half an inch or so along the inner surface of the prolapse to be then thrust through its wall, under the guidance of the thumb of the left hand within the intestine and the fingers outside. The ligature being then withdrawn from the eye of the needle and its two ends loosely tied, the needle

Fig. 3.



Mode of operation.

while still *in situ* was threaded with a second ligature, again drawn back into the cavity of the gut, advanced circumferentially about half an inch and thrust through as before. About six ligatures were thus applied without the entire withdrawal of the needle, which became necessary when the obliquity of the punctures could not be corrected by the mobility of the parts. The needle was then wholly withdrawn and passed through the base of the mass one hundred and twenty degrees further on, so as to manipulate another third of the circumference. The needle was passed through punctures already made to avoid leaving any isthmuses of tissue unencircled by a ligature. By these manœuvres the whole base of the prolapse was traveled over and seventeen ligatures passed. These were tied with

all my strength, first with a surgeon's knot and afterwards with a reef-knot. I used so much force in drawing the ligatures tight as to cut my hands severely. Fearing I could not tighten them as much as I wished, I wound the ends around bits of wood or around pairs of forceps, and pulled on these with all my strength. The ligatures were of the best flaxen thread, and could not be broken. From the method of passing the ligatures it is evident that every particle of tissue was necessarily included in a noose. Fig. 2 shows the general plan of the operation, and Fig. 3, in a diagrammatic way, the management of the needle and the disposition of the ligatures.

Immediately upon ligation the tumor assumed a livid coloration, and I supposed strangulation would be prompt and complete. nevertheless, next morning, I found that the surface had recovered its normal color, secreted mucus as before, and bled when pricked. After forty-eight hours, the general appearance of the mass indicated its healthy nutrition notwithstanding the fact that the ligatures had certainly been very tightly applied and secured with knots which I am sure had not yielded. It was not possible, under the circumstances, to say when the mass would come away if left to itself. The necessary ulceration also, might determine severe hemorrhage, as after the ligation of the mucous membrane of the previous operation. The next day, therefore, I applied eleven elastic ligatures by means of threads tied to their ends, with an aneurism needle. These produced complete and permanent strangulation, so that on the fifth day I proceeded to separate the mass by dividing the bands of sphacelous tissue;—there had not been a drop of blood lost since passing the flaxen ligatures. Turning the patient on his face, the left forefinger being in the rectum, with scissors and probe-pointed bistoury, I began to divide the isthmuses of dead tissue *distally*, to the ligatures, carefully avoiding any traction or disturbance of them at this time. In this way, posteriorly and laterlaly, three-fourths of the circumference of the conoid mass was separated, the anterior fourth remaining attached until the patient could be rolled over on his back. This precaution was observed and the event proved its advisability, in view of the possible presence of a glove finger of peritoneum, brought down in this long-standing case by the superincumbent weight of the intestines, as a prolongation of the recto-vesical reduplication, between the two layers of the prolapse upon its anterior aspect. It was in view of a consideration

of this kind that I used the ligature, hoping thereby to induce adhesion of the contiguous peritoneal surfaces lying enclosed within the base of the tumor, besides avoiding hemorrhage, by its employment, which in the very anæmic condition of the patient might have been fatal to him. I calculated that agglutination would have been effected so as to prevent extrusion of intestine, by the time the isthmuses ligated were cut through by ulceration, or had become partially sphacelous so as to admit of the detachment of the tumor by the knife and scissors. This, no doubt, really happened, but the aspect of the case was very promptly changed, and the prognôsis greatly aggravated by his mental state and consequent lack of self contral, as I shall proceed to relate.

Having turned him on his back, I began to detach the mass, as already described, but while doing so he strained violently, and caused a small knuckle of intestine to tear through the edge of the stump, throwing off both a flaxen and an elastic ligature before it. Very soon, under the continued straining, more and more intestine was forced out, the rent being steadily enlarged to a size capable, as I afterwards found, of admitting my two fingers. Altogether within a couple of minutes, during which time his tenesmic straining was uninterrupted, except to take breath, the patient succeeded in forcing out of his abdominal cavity a mass of intestine as big as two large fists, or even larger. This lay between his thighs and in direct contact with the sphacelous mass not yet wholly detached, and the suppurating surface below. Having promptly divided the remaining bonds of tissue, and separated the prolapse from the body, I deluged the extruded intestine with warm water, and endeavored to return it into the abdominal cavity during the intermission of his acts of insane straining. This I eventually succeeded in doing after thirty minutes of great labor, constantly negatived by his almost ceaseless expulsive efforts, which were so powerful that I almost feared that the reactive pressure of my fingers and hand might rupture the intestine. In accordance with general rules of the taxis, the part which had been last extruded was first reduced. Having at last got a fair hold of the margins of the rent, and succeeded in showing a nurse how to substitute his thumbs and fingers for my own, I quickly threaded six needles with strong silk and passed them deeply through the tissues, half an inch at least from the edge of the rent. Two stitches, by way of reinforcement were also

taken at each extremity of the line of suture, through the stump of the prolapse.

After cutting away all shreddy masses, and detaching all the ligatures used for strangulating the tumor, the surfaces were dressed and securely supported with a pad and T bandages. There was no further extrusion of intestines; six days afterward there was a good deal of diarrhœa with some tympanites and considerable dryness of the throat. No fever or exaltation of the temperature was observable. The after-treatment comprised the use of stimulants and nutritious fluid food, with quinine and and opium.

It is now two weeks since the operation (Oct. 20th, 1877). The patient is sitting up in bed and in all respects doing well, though I fear the re-development of the prolapse to some extent. There is now a prolapsed portion of bowel, quite healthy in appearance, about the size of half a hen's egg. The site of the intestinal extrusion is soundly healed. He will be allowed to assume the erect posture in a day or two.

[Dr. Ford requests that the following remarks upon the further progress of the case, which proved a complete cure notwithstanding such a variety of disadvantageous accidents, be here inserted as an extract from his private notes.—Ed.]

Two days after the above report of the case, the small prolapse described returned of its *own accord* within the sphincter, and now (Dec. 20th, 1877), still remains up. The anal margin is quite normal in appearance. The finger deeply introduced into the bowels, feels some inequalities and nodular indurations of no great extent. There has been no disposition, whatever, toward eruption of intestine or the formation of hernial sac. The aperture by which the intestine escaped is not only soundly healed, but being now within the sphincter and supported by it since the return of the stump of the original prolapse, and being, moreover, wholly changed in direction with regard to the pressure of the intestines, and supported beneath by the perineum and peri-anal tissues and laterally by the walls of the rectum and contracted internal sphincter, there is scarcely a possibility of a descent of small intestine or of the formation of a hernial sac through the cicatrice uniting the edge of the rent, unless a new prolapse of the large intestine should form. Of this there is no indication whatsoever. The patient remains at will in the standing or sitting posture; sits at stool without supervision, has an ex-

cellent appetite and enjoys his food at the regular refectory-table with other inmates at large. He must be regarded as wholly restored to health, so far as the prolapsus recti is concerned.

The entire length of the rectal intestine was probably excised, about nine inches. The weight of the prolapsed mass was, no doubt, the principal cause of the intractable nature of the affection. By amputation the superior bowel was relieved of the traction due to the weight, not far short of a pound, of the voluminous, and thickened parts outside the sphincter, and upon removal of these, the elasticity of the intra-pelvic structures, and colon itself caused a spontaneous reduction of the stump of the original prolapse, and have plainly prevented the formation of a new one. The issue of the case distinctly shows the propriety of amputation in similar inveterate cases. I can not find the records of any operation of this knd except of partial extirpations of rectal and recto-vaginal tissue for malignant growths. Marchand, pro-sector to the Paris hospitals, published an essay in 1874, in which he concludes that extirpation of the *lower extremity* of the rectum "is not a very grave operation when practiced within certain limits," in order to remove incipient cancer. The case I have reported shows that the entire rectum may be removed without loss of life, or perhaps very great danger, and that the operation will succeed in curing the worst cases of prolapse, hitherto mostly incurable by the best devised operations of ligation, or peripheral excisions however deep.

1611 Washington Avenue.

Translations from the German.

ARTICLE XII.

BLOODLESS OPERATIONS.* By PROF. F. ESMARCH. Translated for THE JOURNAL by ED. EVERS, M. D., of St. Louis.

GENTLEMEN :—Yesterday you all witnessed a tedious and difficult operation, during which the patient lost a large quantity of blood although every possible precaution had been taken.

By the operation referred to, we removed a vascular, medullary cancer-growth of the size of a child's head, which occupied the right upper side of the neck. It involved not only the parotid but also the neighboring muscles; the sterno-cleido-mastoid, mylo-hyoid and the posterior belly of the diagastric, so much so that we were obliged to remove a considerable portion of all these parts. When the operation was completed the internal jugular vein and the carotoid were exposed at the bottom of the wound to a considerable extent.

The main difficulty of the operation was caused by the extraordinarliy profuse hemorrhage. You remember that, although I took the precaution to make the incisions very small, yet at every cut, one or more arteries would spurt, or some vein would discharge their dark blood into the field of operation. You observed that I endeavored to control the loss of blood by seizing the bleeding vessels after every incision with clamp forceps, and leaving these attached while I proceeded with the operation. More than once, everyone of the 24 forceps which I keep handy while performing major operations, was dangling from the wound at the same time, so that I was obliged to ligate the vessels they held before I could continue. When the operation was finally completed I had applied more than 50 ligatures, 15 of which were attached to the tumor itself, the other 35 remaining in the wound.

I cannot estimate the quantity of blood lost as it was constantly removed by sponging, but the extremely anaemic condition of the patient was apparent from the waxy complexion, small, feeble pulse and laborious respiration.

No doubt most of you mentally avowed not to begin your surgical career with an operation of this kind. In fact it is precisely this "demoniacal" blood as Diffenbach callsit, which often deters the young practitioner from attempting major operations, particularly when he is without adequate, skillful assistance.

* Volkmann's Kin. Vortraege. No. 58.

Yet he will be a good operator only when he has learned to combat hemorrhage with coolness and presence of mind. I need not impress upon you the importance of hemorrhage in all operations. In many cases the hemorrhage which we anticipate limits our operative interference. We dare not perform many an operation, which is otherwise indicated, because it would take so long to perform it that the patient would in all probability bleed to death before it could be completed, or because we consider the patient too weak and exhausted to survive the inevitable loss of blood.

To-day I shall perform an operation in which the loss of blood would be even greater than it was in the one performed yesterday were it not for an appliance which will enable us to completely control the hemorrhage. The patient who is now being placed upon the operating table has suffered total necrosis of both tibiae, the result of an acute osteomyelitis, which 20 years ago followed a severe cold. You observe numerous fistulous openings in the anterior surface of both legs, which discharge a considerable quantity of pus and through which the probe everywhere reaches rough and moveable bone. Feel the legs; you will find the bones enormously thickened and considering the long duration of the process, we may safely assume that the thickened bone which envelopes the dead portion (sequester) has also become very hard. The situation of the fistulæ in both legs from the upper to the lower epiphysis indicates that large portions of both diaphyses are dead and the variable depths of the canals through which the probe reaches dead bone, proves that necrosis has taken place at different depths in different places. I have a probe in each one of the fistulae and now with this upper one I press upon the sequester. You will observe that all the probes move simultaneously and may conclude therefore that the entire sequester is moveable and and forms a continuous whole. To remove it, it will be necessary to open the thick, enveloping bone in its entire extent. To secure complete cicatrization of the large wound I think it best to transform the long canal into a broad boney groove by taking away the entire anterior wall, not leaving any collateral canals to retard recovery.

Those of you who have seen a similar operation before will remember the enormous loss of blood which rendered it so difficult and tedious. Our patient is still pretty well nourished and not very anaemic; yet I do not think that formerly I would have attempted to perform both operations at one sitting because I would have feared that the hemorrhage might destroy the life of the patient. With the aid of the appliance, which I shall show you presently, I do not hesitate to operate upon both necroses at the same time, and thus I shall save the patient a subsequent operation and a second long confinement. Simultaneously with me my assistant, Dr. Petersen, will operate upon the

right leg in the same manner as I shall operate upon the left. While the chloroform is being administered, we envelope the legs with oiled tissue paper, to prevent the pus of the bone fistulæ from soiling our bandages; then we apply these elastic bandages, woven of rubber, (caoutchouc) from the tips of the toes to above the knees, and by their equable pressure force the blood out of the vessels of the limbs. Immediately above the knee, where these bandages terminate, we pass this rubber tube four or five times around the thigh, stretching it as much as possible, and securing it by fixing the hook of this end into the brass chain of the other. The rubber tube thus compresses all the soft parts, together with the arteries, so completely that not a drop of blood can pass into the parts below. The apparatus possesses this advantage over all tourniquets, that you can apply it to any part of the limb without regard to the situation of the main artery. With this simple apparatus you can completely control the supply of blood to the parts in the fattest and most muscular individual.

We now remove the elastic bandages and tissue paper, and you observe that both legs look precisely like the legs of a corpse, their pale color contrasting strangely with the roseate hue of the rest of the body. You will notice, too, that *the incisions are as bloodless as when made on the dead subject*.

Both of us now proceed to divide the soft parts over the anterior surface of the tibia down to the bone; a few drops of blood ooze out from the bone and are sponged away; hereafter we have no more blood to deal with. The periosteum is divided and drawn aside so as to expose the entire anterior surface of the thick, rough fistulous bone.

We now taken large chisels with wooden handles, such as carpenters make use of, and applying the edge to the border of the uppermost fistula, with the aid of a wooden mallet, we chip away the anterior osseous wall.

The bone is very hard, as I anticipated; our labor is by no means easy, and requires some little practice, which you can best acquire in the carpenter shop. Guard your eyes, gentlemen, for the sharp and pointed chips are thrown off with considerable force. We could remove this portion of the bone with a chain saw or Heine's osteotome; but these processes are so much more difficult and take up so much more time, that I prefer to use the chisel.

The large sequester now gradually comes into view. You can readily distinguish it from the rosy-hued, living bone, by its white color. Of course, this contrast of color is much more marked when you operate without our appliance. Then the blood oozes out of every pore of the cut surfaces, as out of a sponge, sometimes spurting out lively and filling the cavity at every blow of the chisel, so that you can distinguish nothing whatever, and can only reapply your chisel after your assistant

has thoroughly sponged out the cavity. Now, I need no assistant; Dr. Petersen is, like myself, chiseling away at his bone in the sweat of his brow. Behold! the most difficult part of our work is done: the sequester is exposed in its full extent; we seize it with a pair of strong forceps and extract it with some difficulty, as it sends irregular processes into small collateral cavities.

The large, long grooves in which the sequesters were imbedded, are partially lined with pale red granulations. We remove these by rubbing a sponge firmly and briskly over the rough surface of the bone, and by scooping out the cavities with sharp, little spoons. We remove them, because in our opinion, they are of no service whatever, in the new formation of bone; then, too, they were slightly injured during our operation, and so would probably die at all events. You will find hereafter, that the entire surface of the bone rapidly produces luxuriant granulations, which are soon transformed into osseous tissue and which quickly replace the enormous loss of substance.

The operation is now completed. We wash out the cavities with carbolized water, to destroy any putrescent organism that may have entered; we line the cavities with gauze saturated with a solution of chloride of iron, and fill them up to the level of the outer skin with tinder. This is well pressed down by means of a gauze bandage saturated with carbolized oil; over this we place a layer of oiled tissue paper, which envelopes the leg air-tight and is retained by an ordinary roller bandage.

Now first we slowly remove the compressing rubber tube. See how the pale skin of the foot becomes spotted at first; then uniformly red, redder even then the rest of the skin. Examine the dressing of the wound beneath the transparent paper; nowhere do you see any blood welling up through the gauze bandage! The patient has not lost a drop of blood throughout. Look at him as he lies here softly slumbering; he has the same rosy cheeks he had before the operation; his pulse is full and strong and reconvalescence will no doubt take place much more rapidly and safely than if we had performed necrotomy in the usual manner.*

Comparing the operation of to-day with that of yesterday, the great advantages of the new method to the patient, as well as to the operator, are at once apparent. As you observed, we both performed the difficult operation without assistance, and then there can be no doubt that the appliance will be particularly

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*The dressing was not disturbed until the fourth day. When removed granulations were already visible in every part of the large cavity; they were at first dressed with oil, but a few days later with an ointment of Zinc Sulph. The healing process progressed without any untoward accident, so rapidly that the patient was discharged from the hospital, at his own request, on the twenty-first day.

useful to the busy practitioner, who is often deprived of skilled assistance.

You may employ the apparatus in nearly all operations upon the extremities with more or less complete success. In removing tumors, in ligating arteries, in scooping out scrofulous ulcers and carious bones and in resecting small bones and joints, you can proceed in the same manner as we did in this case, *i.e.*, you need not remove the compressing tube until you have finished dressing the wound.

Let me call your attention to another great advantage of this method: It enables us to examine the parts more carefully and thoroughly in those doubtful cases in which we must determine how much tissue is intact, how much is diseased; how far we must limit our operative interference; must we amputate, or can we preserve, resect, scoop out, etc? In several instances in which I proposed to the patient to amputate the leg for disease of the tarsal bones and joints, I have promised him, just before administering chloroform, that I would examine the foot carefully and save it if possible. The apparatus having been applied, I have treated the foot precisely as I would have done upon the dissecting table, freely exposing the diseased parts and only after I had satisfied myself that it was impossible to save the parts, did I amputate. The patient did not lose a drop of blood until I had ligated all the visible arteries. Then I removed the compressing tube and ligated the vessels that had escaped before.

I will remark right here, that amputations and resections of larger joints can not be performed absolutely without the loss of blood, for we must guard against secondary hemorrhage before we apply our dressing. When you amputate, therefore, you must remove the compressing tube as soon as you have ligated all the arteries that you can recognize by the naked eye. After the removal of the tube the blood pours into the vessels with increased force, and for a moment covers the entire surface. You readily distinguish the bleeding vessels, however, and when you have seized and ligated them, you are pretty safe against secondary hemorrhage, for the dilatation of the vessels after removal of the compressing tube renders the smallest arteries visible and you are not likely to overlook any important branches.

The loss of blood is not great in any case, and the results of our amputations have been unusually favorable since we adopted this method.

Besides in the extremities you can also control the supply of blood to the male organs of generation by means of a rubber tube. For instance, you desire to remove a testicle or to amputate the penis: Pass a thin rubber tube, such as is attached to this irrigator, around the root of the scrotum and the penis from behind, cross the ends over the mons veneris and tie them behind over the sacrum. I have performed castration and ampu-

tation of the penis in this way without losing more blood than was contained in the organs at the beginning of the operation. If you desire to save even this, envelope the parts with narrow rubber bandages prior to applying the tube; this is certainly advisable in removing large tumors of the testicle. In minor operations about the prepuce or glans it will be sufficient to pass a thin rubber tube, such as is used in draining wounds and abscesses, once around the root of the penis.

Let us now examine for a moment the historic development of our method. The attempt to control the loss of blood during operations are as old as surgery itself. They have given to some periods their peculiar characteritsics. The ancients amputated with red hot knives or dipped the stumps in molten pitch to control the hemorrhage as they knew of no other way to arrest it. It was only when Ambrosius Paraeus conceived the idea of arresting hemorrhage, by ligating the vessels that surgery lost some of its barbarous characteristics. The same surgeon first taught that the supply of blood to a part should be limited by ligating the limb above the line of amputation, and thus gave the first impulse to the numerous methods of arterial compression and to the invention of innumerable appliances by which we sought to avoid the loss of blood during an amputation. How little all of these methods and apparatus answer their purpose is apparent from the fact that no method has found favor and that new tourniquets are constantly invented and recommended, no one of which is employed by modern surgeons. I, for one, never saw a tourniquet used in a single amputation during the whole time that I have studied medicine. My professors preferred to rely upon digital compression of the main artery of the limb, considering it just as safe as the tourniquet, while at the same time it afforded an opportunity to students and assistants to exercise themselves in the control of hemorrhage. Tourniquets had gone out of fashion altogether, though the patient often lost a great deal of blood, particularly if the operation required time.

For this reason surgeons for a time sought to win fame by the rapidity with which they could amputate a limb. Old C. J. Langenbehk, of Gœtinger, was one of the quickest operators of his day. He could cut off an arm or a leg by his oral method, with incredible rapidity. While I was a student at Gœttingen, the following anecdote was current, illustrating his skill:

A famous surgeon visited Gœttingen to witness one of these rapid operations, and Langenbeck promised to exarticulate an arm according to his method. As he was about to begin the operation the old surgeon turned his head to take a pinch of snuff, but, when he turned around again, he found to his great sorrow that the operation was already finished. He would have been equally surprised by the famous nephew, Bernhard v. Langenbeck, who, as surgeon-general of the Sleswig-Holstein army in 1848, astonished the foreign army surgeons by the incredible

rapidity with which he performed his amputations. The attempts to operate as quickly as possible, resulted in a measure, from the desire to cause the patient as little pain as possible; but since this object is now better obtained by anæsthetics, we no longer attach so much importance to the rapidity of the operation as formerly.

[To be concluded in the next issue.]

ARTICLE XIII.

PATHOLOGICAL CHANGES IN THE LARYNGEAL MUSCLES OF PHTHISICAL PATIENTS. Translated for THE JOURNAL by F. J. LUTZ, M. D., of St. Louis.

Most practitioners who have paid close attentionto the laryngeal complications of phthisis pulmonalis, have no doubt, met with cases in which the hoarseness could not be accounted for either by any appreciable change of the vocal chords as revealed by a laryngoscopic examination during life, nor by a post mortem examination of the interior of the larynx; or else the lesions discovered were so insignificant, that the marked hoarseness observed could not be referred to them as a cause.

With a view to arrive at the real foundation of this phenomenon, if possible, Dr. Eugene Fränkel, of Hamburg, directed his attention to the muscles of the larynx and submitted them to a careful microscopical examination. At first the laryngeal muscles of a number of subjects, which had succumbed to some other disease were examined and thus a standard was established; afterwards those of cases in which tuberculous ulceration in the larynx was discovered either during life or on post mortem examination.

The results obtained by him were these: The laryngeal muscles of phthisical patients suffer certain constant changes, in the first place of the *contractile substance* and of the *perimysium internum* or investing sheath, and secondly of the *granular subtance* or sarcous elements, whilst the sarcolemma remains intact. The contractile substance may be affected in four degrees.

In the *first* degree it may be divided into greater or lesser fragments by transverse sections, filling up the interior of the sarcolemma. Frequently a separation of the contractile substance from the sarcolemma exists, leaving a considerable gap

between the two; finally a sudden diminution of the lateral diameter of a musular fasciculus may be observed.

In the *second* degree, the transverse striation becomes indistinct; besides a fine-grained molecular mass makes its appearance, which conceals the transverse striation, in those places where it is yet partly visible and in other places. This mass is the sole contents of the sarcolemma. A part of the fine grains consists of fat, which disappears on the addition of ether; by far the greater part is composed of a peculiar mass which resists all reagents, and which can neither be dissolved by the concentrated acids nor by ammonia.

In the *third* degree the sarcolemma contains nothing but this fine-grained molecular mass; whereas in the *fourth* degree, only the empty sarcolemma is visible, with here and there a remnant of the molecular mass.

The alteration of the perimysium internum consists in a great development of the connective tissue of which it is composed, and of a marked increase of the cellular elements which are contained in it. By this excessive development of the cellular elements, the nutrition of the individual muscular fiber is interfered with, the atrophy and their lateral diameter is diminished. Afterward these newly formed cellular elements either perish by fatty degeneration, or new connective tissue is formed out of them, which in its turn may give rise to changes in the muscle itself.

All the laryngeal muscles are involved to the same extent, which no doubt accounts for the fact, that during life, the laryngoscope does not reveal an imperfect function of any particular muscle; on the contrary this general involvement results in a want of energy of all the muscles, which in turn produces the more or less marked hoarseness.

The *sarcous* elements are either much enlarged or else they retain their normal size, but are present in greater numbers in the same muscular fiber. In neither case, do they show a tendency to exist for a long time, but soon degenerate.

To sum up: The *essential pathological change* consists in *atrophy of the muscular fibers*, which may be brought about in a twofold manner: 1st. By resorption of the fine-grained molecular mass which fills up the investing sheath. 2nd By disturbances of nutrition caused in the interior of the muscle by the expressive development of the cellular elements of the connective tissue, and by mechanical compression of the muscular fibers as explained above." (Virchow's Archiv. Bd. 71. H. 3.) Note.

In the near future the author promises to publish the results of his investigations concerning the changes in other muscles of consumptives. We shall as soon as possible, give them to the readers of THE JOURNAL.

Reports of Medical Societies.

ST. LOUIS MEDICAL SOCIETY. JAS. M. SCOTT, President.

[Reported for THE JOURNAL.]

DR. KENNARD.—There are one or two points in connection with this case* that I would like to mention. The Doctor thought that prolapsus might be due to constipation. That may be so but most of the instances occurring in infants, say 9 out of 10, or 90 out of 100 are due to diarrhœa, and a recurrence is generally overcome by mild suppositories. In adults it is due sometimes to the stricture of the urethra which keeps up an effort at straining. The origin of some cases we can't account for. Six or seven years ago I had a case of a female where the bowels came down a day after she was delivered of a child; not only the mucous membrane but the whole of the bowel. The treatment that is sometimes employed with great and permanent benefit is accomplished by the actual cautery. Van Buren recommeds its use very highly. Some use nitric acid. A persevering use of suppositories often meets with success. The treatment of the Doctor is severe. Not every one could stand it.

DR. FORD:—Of course the causes of rectal prolapse are varied. It may depend upon stricture of the urethra, or upon hypertrophy of the prostate; long continued violent efforts of micturtion, in many cases induce a bowel protrusion. Stone in the bladder for the same reason, especially in children, as well as the impaction of a calculus in the urethra will cause a prolapse of the rectum.

The treatment necessarily varies in different cases. The actual cautery in any of its modifications would have been inadequate. I am convinced and am satisfied now, that neither the use of the ecraseur nor the galvano-caustic wire would have prevented the hemorrhage, while probably laying open the peritoneal glove finger, at the very time of operation. The case detailed was a greatly aggravated one, and peculiarly difficult in view of the absolute intractability of the patient; he was never at ease while his prolapse was reduced. The use of the ecraseur was objectionable from its liability to be followed by hemorrhage in such vascular parts, and he could not spare a drop of blood. In reality he may have lost during the insertion of the amputating ligature, about an ounce of blood, but none at all afterward. Had the bleeding edges been retracted into the pelvic cavity just after their division, the result would have been quite different. The operation of excision or amputation of the

*Dr. Ford's Case. Page 50.

rectum, partly or wholly, must be very rare. In this case nine inches were cut off In children prolapsus recti is due to atony. There was no stricture in the case detailed. It was due, I think, mainly to local and general atony, and originally perhaps to constipation characteristic of the chronic cerebral trouble.

DR. KENNARD :—As a matter of inquiry I would ask if cases of prolapsus will often occur in labor? I was called two days after the labor and quite a large proportion of the bowel protruded. What was remarkable was the little pain or inconvenience that it caused.

DR. FORD :—It is not an uncommon occurrence. Lately I had a case where there were two inches of the protrusion. I put it back and it remained. In all the cases that I know of it was produced by straining. By degrees it would come out, it would increase and more would come out. In the case under consideration it was intussusception, turning inside out of the bowel without any stricture; as the anus dilated the protrusion took place. In this case it was the largest that I have ever seen, about the size of a child's head. The patient could not sit down. There was bleeding from it so that he was constantly becoming weakened. An operation of some kind was certainly indicated.

DR. PREWITT :—In regard to Dr. Ford's case it is rare to see a case as exaggerated, and as Dr. Kennard says, the operation by the use of nitric acid, the hot iron or ligature, or tying up folds of the mucous membrane, might have been successful in some cases, but in this case would have been unavailing, on account of antagonism from the patient's frequent straining efforts. In children it may be replaced by keeping them in a recumbent posture, but it is well to remember that at any time the parts are self-maintaining. It is true the parts have a fullness, and the patient is only relieved when the bowel is out, but with a rational patient, by his co-operation with your efforts, this tendency would be overcome when the congestion was relieved. Very properly, I thing Dr. Ford decided to amputate; so would it be proper in any chronic case of the kind. As the Dr. remarked, it is well to bear in mind the fold of the peritoneum. The operation was right and proper in the case.

DR. MUDD—I have here a specimen taken from a lady fifty-five years of age who suffered for some months before death with disease of the bladder—cystitis. For several months prior to death she had dysentery or symptoms of dysentery. There was much emaciation at the time of death. I had the pleasure of assisting Drs. Barret and Bond in making the post mortem examination. There was a hard rounded tumor, evidently through the abdominal wall, and presenting near the middle line, a little to the right and just above the pubis.

We found no evidence of peritonitis except at one point where there was congestion of intestine and mesentery. This inflammation was limited to two folds passing transversely across the abdo-

men and resting with their inferior surface on the pubis and the fundus of the uterus, and the tissue uniting these two bodies—the pubis and uterus. The uterus was drawn forward, the neck being drawn into the pubic arch, the fundus being about two inches behind the os pubis. This space between uterus and the pubis, bounded on either side with the indurated and thickened tissue binding the uterus and pubis together, constituted the bladder. The cavity would hold two or three ounces of fluid, was irregular in outline, part of the uterine tissue having been destroyed by ulceration. The walls of the bladder had been entirely destroyed and this cavity into which the uterus opened was bounded anteriorly by the pubis, posteriorly by the uterus, superiorly by the folds of the intestine and mesentery, which were adherent to the pubis and uterus, and inferiorly by the junction of uterus and vagina to the pubic arch. One of the folds of the small intestine had an oval opening 1½ inches long in it, so that the cavity of small intestine of the *new* bladder communicated freely with each other. This opening in the intestine was thirty inches from the head of the colon. In lifting the folds of the small intestine they readily separated from their attachments, the adhesions breaking down easily. I have no doubt but what the adhesions were much firmer during life, and that when the vital forces failed prior to death, the destructive ulceration of this new tissue occurred, so that when examined after death the adhesions seemed to be very slight. The uterus contained fibroids, and the round, fluctuating part of the tumor observed was a cyst connected with the right ovary filled with purulent fluid, of which there was about forty ounces. This cyst had a slender pedicle, but was adherent to the anterior abdominal wall by a band of old peritoneal adhesion. I suppose this was a case of epitheleal cancer, orginating in the bladder.

THE SOUTHEAST MISSOURI MEDICAL ASSOCIATION.

The Southeast Missouri Medical Association held its second session at Fredericktown, Madison Co., on the 4th and 5th of December, 1877.

Dr. C. A. Mann, of Perryville, was elected President, *pro tem.*, who, in a few well-timed remarks, declared the meeting open for business.

The following gentlemen were admitted as members of this Association: Dr. Pres. Kennett, of St. Francois Co.; J. P. Sebastian; J. W. Hall, of Wayne Co.; Jas. W. Hall, R. T. Henderson, of Perry Co.; W. C. Talley, of Bollinger Co., and F. B. Schultz, of Cape Girardeau Co.

Letters of regret and good wishes were read from Drs. W. B. Wilson and Gilroy.

During the evening session Drs. Mann, Kline and Vineyard offered some valuable remarks upon *Abscess* and *Locomotor Ataxis*. Other members followed on various subjects of interest.

Morning session, Dr. Mann in the chair. Dr. Goff was elected a member, after which he presented a case of "*shin ulcer*" with some involvement of the bone; also a case of *necrosis* of the *femur* in both limbs of a patient. A general discussion ensued upon the subjects.

During the afternoon session, the subject of necrosis was again taken up, after which the subject of *Herpes* was taken up. Dr. Nifong presented the notes of a series of cases of *Obstetrics*. At 3 p.m., Mrs. M. M. Clardy addressed the Association upon the total abstinence question. The lady's address was listened to with great attention. After a recess of ten minutes, Hon. John B. Robinson expounded the law relative to the registration of physicians.

During the evening session, Dr. A. A. Bondurant was elected a member, after which various subjects were discussed. The next meeting takes place at Perryville, Mo., first Tuesday in May, 1878, at 3 p.m. W. W. WATKINS, M. D., Sec'y.

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

This society assembled Thursday night, Dec. 20th, 1877, at Marini's Hall, which was well filled. The occasion was to celebrate the sixtieth anniversary of the Society.

Dr. Toner, in announcing the programme for the evening, gave a brief history of the Society, which was founded Sept. 26th, 1817. Their first charter was obtained from Congress in March, 1819. There were twenty-one physicians named in this charter, all of whom are now deceased. The charter under which they are now acting is a revision of the first one, and was granted July 7, 1838. In this charter there are named twenty-two physicians. There are but seven of these now living. They are Drs. J. B. Blake, Jos. Borrows, H. F. Condit, J. C. Hall, Benj. King, H. Lindsly and Noble Young.

From the formation of the Society in 1817 to the present, there have been about 450 names enrolled as licentiates of this society. Of these about 180 survive.

Dr. A. Y. P. Garnett consented to be the orator of the evening. He gave an able and interesting address on the subject of the rapid progress of the science of medicine, stating that this progress was due mainly to organized efforts of the profession, particularly such Associations as this.

Selections.

The Circulation of the Blood in the Walls of the Air Vesicles of the Lungs. By G. V. Black, of Jacksonville, Ill.

The circulation of the blood has long been a subject of great interest to physiologists, has received very close attention, and the literature of the subject seems very full and complete.

In what I have to say, I may be spared the trouble of referring to existing opinions, as these are so well understood by the reader that any departure therefrom will be at once noticed; I would, therefore, only increase the length of the present article without rendering it more intelligible.

In studying this subject I became dissatisfied with injected specimens, on account of certain inconstances in appearances which I could in no way explain, and determined to see the circulation in the living animal.

For this purpose I found the ever ready frog the best subject, though it may be seen in the gills of a fish with more difficulty, and even in the lungs of warm-blooded animals by close and accurate work. But the frog is the best subject, as the preparation is accomplished without difficulty, and the observation may be continued for many hours together, and congestion may be studied readily up to complete stagnation.

Mode of Procedure.

Prepare a board ten or twelve inches long by three inches wide, and about one-eighth of an inch thick. Cut a notch squarely into one of its long edges at the middle, about one-half inch long and one inch deep. Prepare another about two inches long, one inch wide, and about three-sixteenth inch thick, and cut a notch in the middle of one of its long edges one-half inch long and a little more than one-half inch wide, leaving it rounded in the deepest part. Pin this upon the first so that the openings come over each other, but looking in opposite directions, so that the two will form a hole for the passage of light. Now adjust two wire springs in such a way as to hold a thin covering of glass laid over the opening thus formed.

Having etherized a frog (a young one—say half grown—of light color answers best, though any may be used) lay it on its side, and take up the skin just behind the fore leg with forceps, and with curved scissors remove a piece nearly as long as the lung. Now take up and remove the muscular sheet immediately

beneath in the same way, being careful not to include the lung, and the lung will be exposed almost without drawing blood. Now adjust the frog on the board, seize the apex of the lung with the forceps, and draw it out and across the opening and pin it. With two more pins spread it out, and lay on and secure the covering glass, and it is ready to place on the stage of the microscope for examination.

It will be seen that by this arrangement the animal will be able to fill and empty the lung at pleasure without disturbing the view, the free space below allowing the necessary expansion and contraction, while the upper part remains fixed against the glass cover. This we regard as essential, for without it the lung cannot be regarded as performing its normal function, and the processes exhibited will be more or less abnormal. Indeed, if the animal does not empty and fill the lung occasionally, the view obtained will be that of partial congestion at best. Frequent moistening of the skin is also advantageous in obtaining normal conditions. A good light is required. An aromatic condenser gives the best result, as it serves to dissipate the shadows formed by the part of the lung beneath, but a fair view may be obtained with an ordinary condensing mirror. It may be examined with any power up to the ⅛ inch objective for hours together, if desired, by the proper regulation of the ether, or by securing the animal to the board properly the ether may be dispensed with.

It will be observed that profound etherization causes severe congestion, and no more should be used than is necessary to keep the animal sufficiently quiet. I would remark, in passing, that this experiment gives a splendid showing of what happens in the lungs during etherization.

If simply a show is all that is wanted, we need not pay much attention to these precautions, but when we wish to study *natural processes* every disturbing element must be carefully excluded as far as possible.

On looking into the instrument with a good power of say fifty diameters, a view is presented which defies description. A rather coarsely meshed network, forming the framework of the air vesicles, carries arteries and veins of considerable size in which the blood rushes rapidly in every direction. Between these, transparent membranes are stretched, across which the blood sweeps in seemingly almost one unbroken sheet, taking, perhaps, a different direction in each individual expanse. Incessantly rushing, gathering, whirling, shooting across here, gathering in streams there, with unceasing motion, presenting a scene of rare beauty.

It is to the transparent spaces that we wish to call especial attention. The arteries and veins present nothing peculiar, except the manner in which they distribute the blood to, and receive it from, these transparent spaces. For studying these a good power of about two hundred diameters is best.

For convenience of description we may say that the air vesicles

are a number of four, five, and six-sided boxes, with one end open, fixed around the walls of an enclosure, with the open end looking toward its center, which constitutes an ultimate lobule or an infundibulum of the lung of the warm-blooded animal, and one entire lung of the frog. The meshes seen, constitute the framework or corners of these boxes or air vesicles, and usually carry an artery or vein, or both, so that an artery or vein passes along each corner of each air vesicle. These arteries and veins, with the fibrous tissue, of course, require room, and thus round the inner corners of the air vesicles.

Everywhere between this framework transparent membranes are stretched across, forming the walls of these boxes or vesicles, in which the aeration of the blood is accomplished, and in what we have to say we shall call them the aeration sheets of the air vesicles, or of the lungs.

These aeration sheets may be most conveniently described as being composed of two membranes, stretched in close proximity, and united at short intervals apparently by a sudden but slight thickening and union of their proximate sides, which prevents their wider separation. Between these the blood is spread for aeration. In the normal state of inflation of the lungs the stretch of these membranes is sufficient to hold their sides plain and parallel to each other against the force of the normal heart's action, consequently the lumina through which the blood is spread are flat, holding the blood in an exceedingly thin sheet, in which one blood globule is never seen above another, though continually observed side by side, placing them in the best possible position for aeration.

But in case of undue force, as in congestion, abnormal impulse from the heart, or by the syringe in injection, the tension of the membranes is overcome, and they are swollen out where the lumina are widest, in which process many of the narrower spaces are actually closed to accommodate the swelling of neighboring parts. In other words the two membranes being held together at short and somewhat irregular intervals, they become wrinkled in swelling from pressure from within, in such manner as to spread some portions of the blood space at the expense of closure of others, thus presenting to the eye the appearance of a network of round capillaries, which do not exist in the normal condition. We suppose every one who has opened the chest of a living animal has noticed—indeed, been almost startled at the sudden collapse of the lungs upon the admission of air through the thoracic walls. The lung which a moment before had filled the thoracic cavity completely, now lies motionless, contracted to less than one-half its former dimensions.

Why this contraction, this sudden collapse? Simply this. The lungs are inclosed in an hermetically sealed chamber, from which the air is exhausted, but is allowed to enter the lungs themselves, which it expands to fill the space, and this tension is kept up by

the thoracic walls, keeping the walls of each individual air vesicle in a continuous state of tension during life, thus accomplishing the fact of keeping the lumina through which the blood is spread, flat and thin, even against the pressure of the heart, that the blood may be quickly and perfectly aerated with the least possible expense of time and apparatus.

The attachment of the membranes composing the aeration sheets —which, from their resemblance to pillars built up in a stream, I shall call the attachment pillars—at first sight in the living specimen seem to be a simple thickening and union of the proximate sides of the membranes of the sheets. But further scrutiny shows that there is a ditinct wall reflected from one to the other, leaving in interspace which is filled by what appears to be a cell—sometimes two or more—something like the columnar variety of epithelium, which reaches through from side to side. In size these pillars vary considerably in different sheets, and in different parts of the same sheet, being long and slender when the blood sweeps fairly across from side to side, and large and more irregular in form where the blood is delivered into them from all sides, and is gathered into a venule at one point, or, in the reverse case, where the blood is delivered by the termination of an artery, and spreads to all sides, either of which is not very infrequent, although the sweep of the blood directly across the sheet seems to be the typical plan.

In size the attachment pillars of the aeration sheets vary from less than half that of a blood corpuscle, to that of three or four, the average in the frog being perhaps about that of a corpuscle and a half. I have frequently observed a corpuscle strike flatwise against one of these small pillars, and bend round it before the current, so that its opposite ends came together at the other end of the pillar, thus completely encircling it, and hang so for some time, until finally it would draw to one side and float away.

It is very common to see corpuscles hanging in this manner upon the sharp ends of the pillars presented to the current, and often a great many may be observed at a single view stretched across like so many saddle bags, occasionally two or three on top of each other. The white blood corpuscles are seen with difficulty in the full free circulation, but when the force of the current begins to lag from the weakened condition of the animal—which often occurs after it has been on the board for five or six hours—they may be readily observed, picking their way, as it were, slowly along, clinging for a time to each pillar they meet with, and sometimes stretching out from one to another. I have a number of times observed them drawn out to a mere thread.

The manner in which the blood is delivered to the aeration sheets from the artieries varies considerably, seemingly dependent on the position of the artery relatively to the sheet; for it sometimes happens that an artery only touches one corner, in which case a small branch is sent out directly into the center of the

sheet, spilling its blood in every direction, which enters the veins on all sides. Again this is exactly reversed, the blood entering from all sides and gathering into a venule originating in the center of the sheet. Such arteries and veins are never seen to run across a sheet, nor more than to its center; and these are rather exceptions to the rule. The blood sometimes passes into the sheet at three sides, and out at one or the reverse, but the most general plan is the entrance of the blood at one side, which passes fairly across a sheet without turning this way or that and escaping at the opposite side.

The question as to whether the blood passing through one sheet is passed on through another before being taken up by a vein, is in many cases difficult to determine, where the vessels are pretty large. In many instances the blood may be seen to pass the boundaries of a sheet, on the inside of the air vesicle relatively to the larger vessels, and continue its course through another sheet; but these seem to be exceptions to the more general rule, viz.: That the blood passes into the veins after the passage of a single aeration sheet. I think it may be stated that the blood entering the sheets of one vesicle is never passed to those of another, although it may pass to a second sheet of the same vesicle, though it is possible that further observation may change this view, for it will be remembered that with the exception of the sheet at the base of the vesicle, which lies against the wall of the ultimate lobule, only one side of which is exposed to the air, at least in the frog; all other sheets form the walls of two vesicles; and it is frequently very difficult to trace the course of the blood to its entrance to a vein when it has passed more than one sheet.

The manner of the passage of the blood from the arteries to the aeration sheets and its reception by the veins is very singular, and peculiar to the lungs. We have, it is true, the breaking up of the arteries into smaller and smaller branches in the distribution of the blood to the lungs, and occasionally a terminal point is sent a little into a sheet, where it usually terminates suddenly, spilling its blood, so to speak, in every direction. Even this is quite unlike what is seen in other parts, while the more general rule is the escape of the blood, a globule at a time, in very close proximity—frequently less than the width of a globule apart—as from a very delicate seive, along the sides of an artery—not very minute—which borders the aeration sheet. They then take their course directly across the sheet, seeming to pursue no especial channel, but go knocking and bumping against the attachment pillars, until, reaching the other side, they are taken into the veins in the same manner.

The question as to whether these aeration sheets are traversed by capillaries in exceedingly close and intimate anastomosis, or are a structure entirely peculiar, is not one that we have wished to raise.

We have adopted the above form of description simply because it seemed to us that by it we could best bring the facts before the reader's mind. We are perfectly aware that many of the older anatomists and physiologists will be inclined to look with disfavor upon such a form of description, and would be inclined to describe the vascular system of these sheets from the basis of capillaries of exceedingly close anastomosis; the correctness of which we should not question. We suppose their mode of development to be similar to capillaries in other parts. We think, however; that while other terms than those used by us may be devised that will express our meaning more perfectly, there are some anatomical reasons for not describing the circulation in these sheets from the basis of capillaries.

1st. The capillaries in all other parts are round, while in the aeration sheets they are not round until made so by injection or congestion.

2nd. Capillaries in other parts have distinct walls imbedded in other tissues; here the walls of the vascular system are not so imbedded in other tissues, but form the aeration sheets.

3rd. The peculiar sweep of the blood across the aeration sheets is inconsistent with the meandering circulation of capillaries.

4th. The peculiar manner of the escape of the blood from the arteries, passage of the sheets, and entrance into the veins is inconsistent with the subdivision of arteries into capillaries and reforming into veins, as observed in other parts.

5th. Injected specimens of other parts give quite correct views as compared with the living specimen, while they give entirely false views of the circulation in the aeration sheets of the air vesicles of the lungs.

Only the last of these require further notice at the present time. The descriptions of this system of vessels in the literature of the subject of the present day are all from the injected specimen. I will make an effort to explain the differences manifested between these, and the normal living specimens.

These sheets are comprised essentially of two elastic membranes attached at frequent intervals, which in the normal condition of inflation of the lungs are put on the stretch sufficiently to maintain their plain position against the force of the heart's action, which tends to round or bulge them out at all parts not attached, holding the blood spread out in a thin sheet, in the best possible position for aeration. But if the normal conditions are interfered with by congestion and abnormal force of the heart's action, or by the syringe in injection, the walls of the blood space are swollen out and rounded; and as the pillars of attachment are elastic, and on account of their increased thickness capable of a greater stretch than the membranes proper, they are much enlarged to accommodate the rounding of the blood space. This enlargement of the attachment pillars is again enhanced and made to appear greater by the refraction of the light passing

through them. A moment's thought will show that each of them, in the condition just described, will constitute a lense for the dispersion of the light they transmit. Hence they are first really enlarged and then appear larger than they really are.

It may also be observed, in watching the progress of congestion under the microscope, that many of the passages of the blood will be obliterated entirely by the approximation of the sheets at certain points to accommodate the rounding out of neighboring parts; so that two or more attachment pillars are seemingly converted into one. One sheet in which I was watching the progress of congestion, became so peculiarly wrinkled in the process, that before stagnation was reached it seemed to have round capillaries running parallel across it, with but very rare inter-communication; afterward as the congestion passed away the closed portions reappeared and the sheet resumed its normal appearance. By this is not meant the simple stoppage of the blood in certain parts while in motion in other parts, but its actual exclusion by closure. These reasons we think sufficient to account for the discrepancies noticed between the appearances exhibited in the normal living and the inspected specimen.

Our principal object in writing this article is to draw the attention of physiologists and microscopists to this subject, believing that it offers a field of investigation not yet fully explored, that it offers also an opportunity for investigating the influence of anæsthetics on the circulation of the lungs, and for studying the processes of inflammation in these organs—and because of the very beautiful scenes presented, which are certainly among the most striking and interesting which the microscopist can place under his glass.

It is no more difficult than the examination of the mesentery or the tongue, and but little more so, than the adjustment of the web of the foot, and can be readily accomplished by any microscopist of moderate expertness.—*Missouri Dental Journal.*

Abstract of Clinical Lectures on the Examination of Urine. By James Sawyer, M. D., M. R. C. P., of London.

Epithelial cells found in urine may be furnished by any part of the genito-urinary mucous membrane. Such cells are sometimes seen almost entire, but they are often more or less disintegrated. The epithelium of the pelvis of the kidney is tesselated, and the cells are triangular or caudate in shape. The epithelial lining of the ureter is formed of several layers of cells; at the free and at the attached surfaces the cells are rounded, but in the intermediate strata they are columnar. The superficial epithelial cells of the bladder are flattened, while the deeper are columnar. Any of these varieties of cells may be found in the urine of pa-

tients suffering from vesical or renal calculus, or in simple pyelitis. Dr. Roberts has pointed out that many of the epithelial cells of the bladder, ureter, and pelvis of the kidney closely resemble cancer-cells, and may easily be mistaken for them. You ought never to found a diagnosis of cancer of any portion of the genito-urinary apparatus solely upon the results of a microscopic examination of urine. You must remember, too, that there is no such thing as a "cancer-cell;" it is an exploded pathological myth. The epithelial cells of the urethra are columnar, but they become scaly towards the external orifice of the tube. Urethral and prostatic epithelium—oval, flattend or caudate cells—are frequently found in the urine, especially after gonorrhœa; such cells may persist in male patients for years after an attack of gonorrhœa.

In the urine of females the characteristic epithelial cells of the vagina are frequently found. By their presence the sex of the person furnishing a specimen of urine may be distinguished. The cells are large and flat, and resemble, but are larger than, epithelial cells of the mouth. They may appear singly, or several may be found united by their edges. In women, vaginal leucorrhœa is an abundant source of these cells in urine, and they may also be furnished by the discharge from the more external portion of the vagina and from the vulva which so often occurs in scrofluous children.

SPERMATOZOA.

Sometimes a few spermatozoa may be seen in the lower strata of the urine of healthy men. When semen is present in urine in small quantity it forms a deposit closely resembling mucus. When present in large quantity it may render the urine opalescent, or appear in viscid flakes or masses as an urinary deposit. A spermatozoon consists of a rounded "head," $\frac{1}{10000}$ of an inch in diameter to which is appended a tail-like filament. For a short time after their emission in urine they may exhibit some movements; but urine seems quickly to arrest their motions and they are generally motionless when seen in urinary deposits. Spermatozoa remain unchanged in urine long after the fluid has become putrescent. A high power is required for their demonstration. Vibriones, minute vegetable growths, may sometimes be easily mistaken for spermatozoa. After coitus, spermatozoa may be found in the urine of the male and female. A slight discharge of semen may appear in the urine of weakly men after the passage of hardened feces; semen may collect behind a stricture and be evacuated, mixed with urine, during micturition. Spermatozoa may appear in urine in consequence of nocturnal seminal pollution.—*Medical Examiner* (London).

Editorial.

In assuming the duties and responsibilities of conducting THE JOURNAL, we can promise our readers that our utmost efforts will be exerted to maintain, and, if possible, to increase its usefulness. The labor, as we can well imagine, will be by no means light, but we confidently trust much to the aid of the profession, and hope that in the reliance which we may place on those who are well able to supply original contributions, we will not meet with disappointment. THE JOURNAL is ours, only as to the risk and labor of coducting it; in all other respects we hope that the profession will feel that it is theirs, and will regard it as an avenue for them to the medical public, and a means of individual benefit. We purpose that no personalities shall ever soil the pages of THE JOURNAL. When we find that discussions cannot be carried on without these, we shall not hesitate to decline further use of our columns. As for ourself we have no inclination in this direction. When we cannot speak respectfully we shall be silent.

With the brethren of the press, we expect to maintain the most amicable relations, and shall strive to deserve their esteem and good will. We greet our readers, soon, we hope, to become familiar friends, with a HAPPY NEW YEAR.

FREE BODY MOVEMENTS.

A committee has been appointed by all the gymnastic societies of this city to submit to the teachers of our public schools a "plan of light gymnastics," called free body movements. The object is to recommend the introduction of these systematic movement exercises into our public schools. We are informed that many of the teachers are strongly in favor of these hygienic measures. There can be no doubt that these exercises will have a healthful effect upon both teachers and scholars, especially upon those of the latter, who belong to the higher classes, as their only exercise during their stay in the building, is that of walking from one room to another, and this is not repeated oftener than four or five times during the day.

This is a subject of very great importance, and has engaged our attention for many years. At a future time, we intend to call the attention of our readers to its importance. We believe it to be the duty of every physician to use his influence upon this subject, until these exercises are in successful operation in our public schools.

Book Notices and Reviews.

MODERN MEDICAL THERAPEUTICS: A COMPENDIUM OF RECENT FORMULÆ AND PRACTICAL THERAPEUTIC DIRECTIONS, FROM THE PRACTICE OF EMINENT CONTEMPORARY PHYSICIANS, AMERICAN AND FOREIGN. By GEORGE H. NAPHEYS, A. M., M. D., etc. Fifth edition, enlarged and revised. D. G. Brinton, Phila., 1878.

This work is what its title indicates. If the previous editions were of 1,000 copies each, the present, the fifth, shows that it has met a very general want, and proved that it is, at least, considered a work of merit. It seems well adapted to the wants of the general practitioner, as affording him in a convenient form the result of the experience of numerous physicians in the treatment of the diseases embraced in the work. Many will find it a very valuable aid in practice, and after a practical use of it, as almost indispensable. C.

MANSILL'S ALMANAC OF PLANETARY METEOROLOGY AND NEW SYSTEM OF SCIENCE, by Richard Mansill. R. Crampton, Publisher, Rock Island, Ills., Price 50c.

This is a pamphlet of quarto size, and presented in an elegant and attractive dress. It is something new in the almanac line, and aims to be instructive, and not amusing. For each month a map is given of the positions in which the planets appear in their orbits on certain days in the month, and is intended as an illustration of the views held by the author respecting the influence of the planets on the meteorology of the earth. These maps add much to the interest and value of the almanac.

On the truth or falsity of the views here presented we express no decided opinion. The subject of terrestrial and planetary meteorology is very complex, the true principles of which are not yet determined. As regards the views expressed in this scientific almanac, we are inclined to look on them as somewhat visionary, as certainly undetermined, and a little inconsistent. That planets have an influence on the meteorology of the earth, we may admit as very probable; but whether to the extent here claimed, may be very reasonably questioned.

Not a few objections occur to the mind as respects the correctness of his views, and the conclusions he seeks to draw from facts observed; but we deem it unnecessary to note or discuss them. The work is not without interest, whatever we may think of the theory, and the reader will find himself both entertained and instructed by an examination of the work, and the investment not unprofitable.

The author is not always happy in the choice of words, or in in the observance of the rules of syntax. But we must not forget that there are spots on the sun. C.

CONTENTS.

Notice to Contributors and Correspondents.

Contributions of original articles are invited from all parts of the country. The publishers offer all facilities for illustration by wood cuts or lithographs of first-class workmanship, at their own expense. At their request authors will be supplied without charge with a limited number of copies containing their articles; extra copies printed separately can be furnished only at the expense of the authors. Declined communications are preserved for six months, and will be returned within that time, on application and transmission of the necessary postage.

Articles intended for publication in the next number should be forwarded one month prior to the date of publication. They must be contributed to this Journal exclusively.

All communications, letters, remittances, books for review, etc., should be directed to THOS. F. RUMBOLD, M. D., 1225 Washington Avenue, St. Louis.

Foreign exchanges and books for review should be sent under cover to Messrs. Williams & Norgate, 14 Henrietta Street, Covent Garden, London; or to Herr B. Hermann, Leipzig; or M. Charles Reinwald, 15 Rue des Sts. Peres, Paris.

BOOKS AND PAMPHLETS RECEIVED.

MODERN SURGICAL THERAPEUTICS: A Compendium of Current Formulæ, Approved Dressings and Spedific Methods for the Treatment of Surgical Diseases and Injuries. By GEORGE H. NAPHEYS, AM., MD., Etc. Revised to the most recent date. Will be reviewed next month.

Tenth Annual Report of the Board of Health, of the City of St. Louis, 1877.

Mental Hygiene of the Pupil and Teacher. A lecture delivered before the Normal School, at Chapel Hill, North Carolina, August 4th, 1877, by EUGENE GRISSOM, M. D., LL.D.

Ninety-fifth Annual Catalogue of the Medical School (Boston), of Harvard University, 1877–78.

Annual Report of the Surgeon General U. S. Army, 1877.

Diseases of the Nasal Cavities. By Dr. CARL MICHEL, of Cologne. (Will be revised next issue).

First Annual Report of the Missouri Eye and Ear Infirmary, 1877.

Notes on the Anatomy of the Perineum, by HARRISON ALLEN, M. D. Extracted from the Transt. of the College of Phys. of Philadelphia, 1877.

The Mechanism of the Joints, by the same. Extracted from the Transt. of the International Med. Congress, Philadelphia, 1877.

The Localization of Diseased Action in the Esophagous, by the same. Reprinted from the *Philadelphia Times*, 1877.

Annual Report of the Pennsylvania Free Dispensary for Skin Disease. Phila., 1877.

New Pessiaries, by E. C. GEHRUNG, M., D., of St. Louis.

Case of Molluscous Tumor of the Ear, complicated with potype and a fistulous opening behind the aricle communicating with the internal ear, and stretching up to a cavity on the temple two inches above the auricle under the muscular structure. By J. J. KIRK, Duncanson. Reprinted from the Edinburg Medical Journal for Nov. 1877.

The Boston Book Publishing Bulletin. A quarterly electic record of American and Foreign books.

BELLEVUE HOSPITAL MEDICAL COLLEGE.

City of New York.

SESSIONS OF 1877-'78.

The Collegiate Year in this Institution embraces a preliminary Autumnal Term, the Regular Winter Session, and a Spring Session.

The Preliminary Autumnal Term for 1877–1878 will open on Wednesday, September 19, 1877, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students expecting to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. During the Preliminary Term clinical and didactic lectures will be given in precisely the same number and order as in the Regular Session.

The Regular Session will commence on Wednesday, October 3, 1877, and end about the 1st of March, 1878.

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